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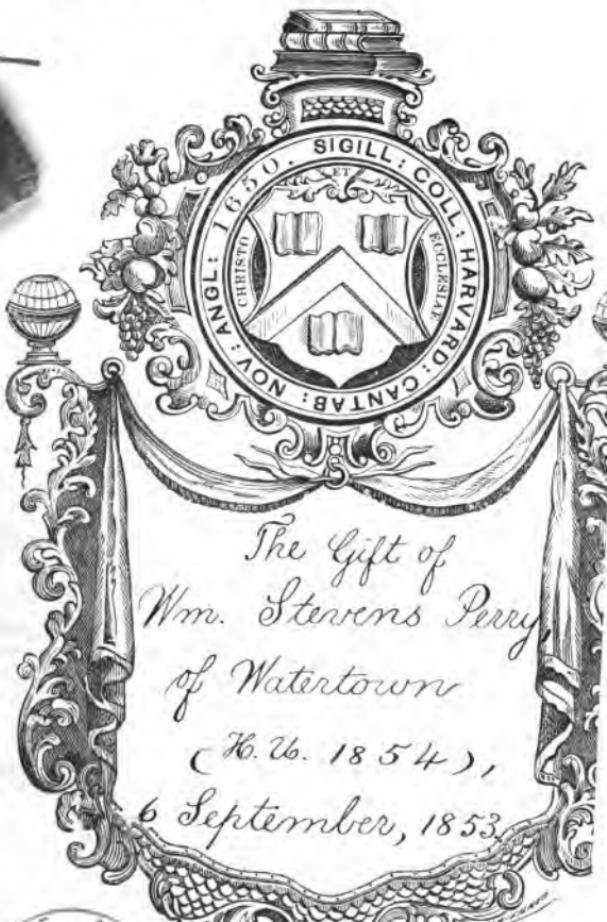
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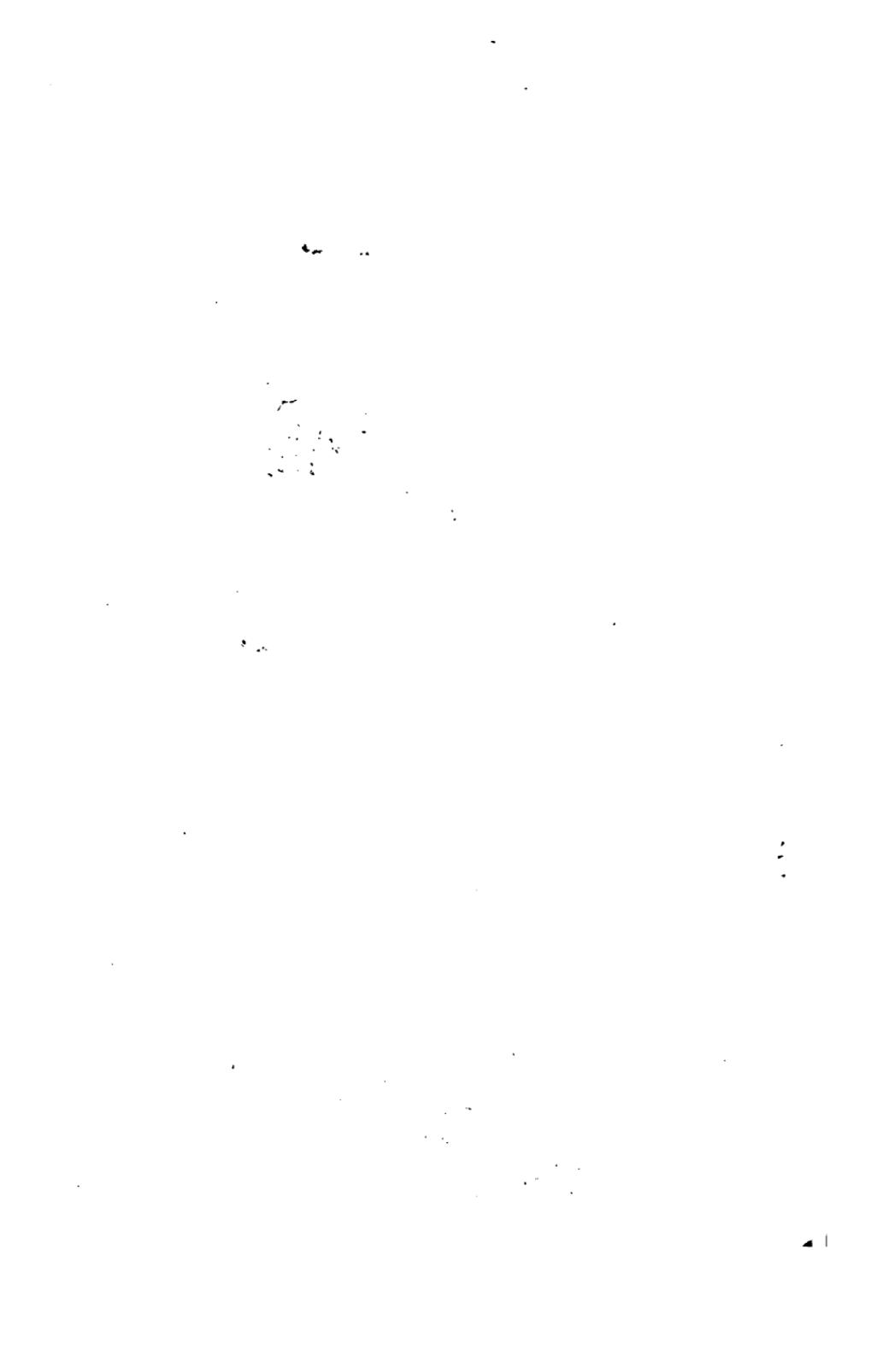


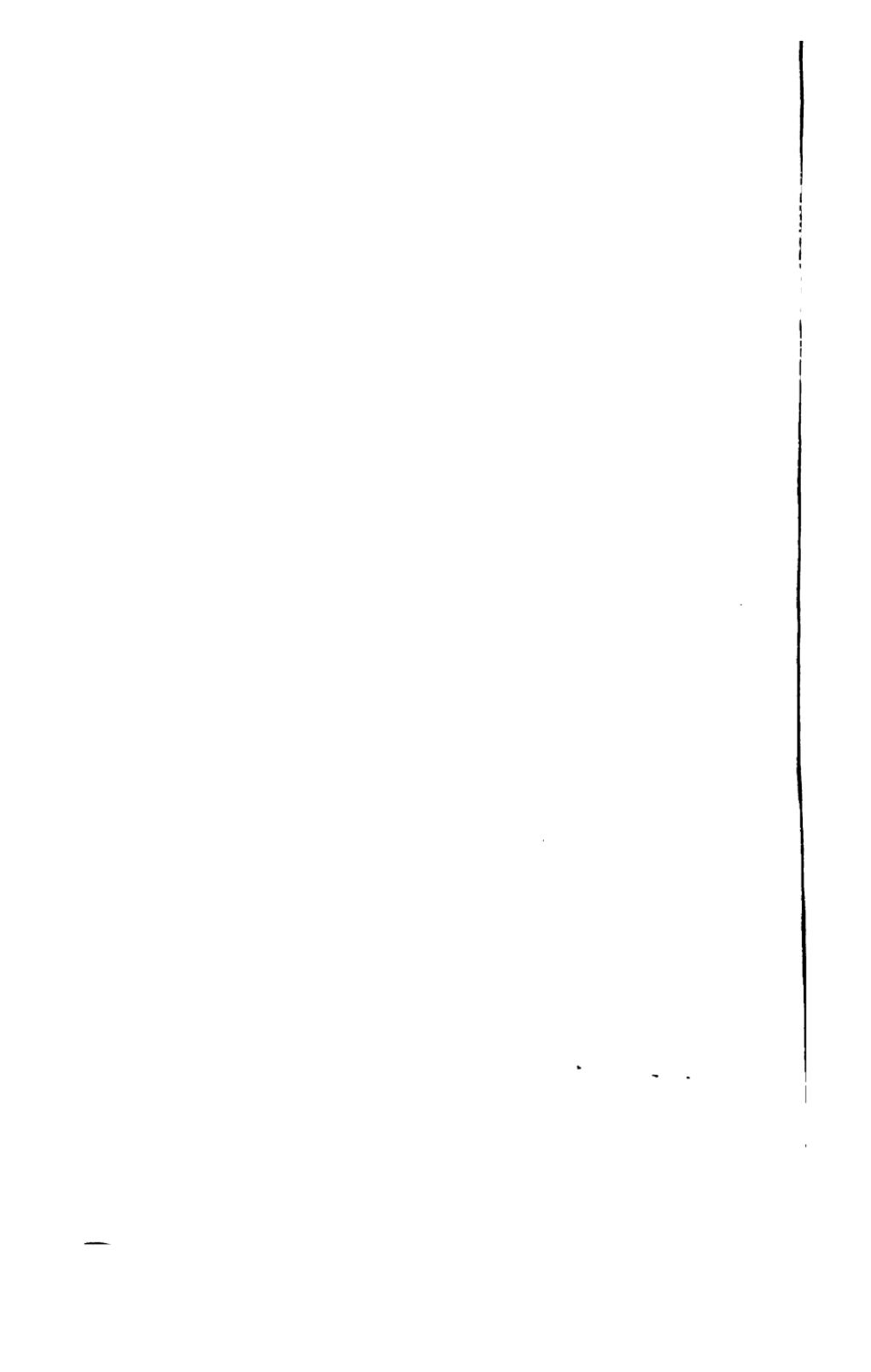
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A

METHOD

OF

TEACHING LINEAR DRAWING,

ADAPTED TO

THE PUBLIC SCHOOLS.

BY THE AUTHOR OF "EASY LESSONS IN PERSPECTIVE."

Elizabeth Palmer Peabody

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INTRODUCTION.

REASONS FOR INTRODUCING LINEAR DRAWING INTO THE PUBLIC SCHOOLS.

THE object of public education is to prepare good citizens for the State ; in its provisions, it should involve the whole nature of man, physical, moral, and intellectual. No state can be true to itself, which disregards either of these points. If private education, when left to the guidance and resources of parents, fail to accomplish either of these, then it is the part of the State to provide for such deficiency ; since its prosperity, its very existence, depends on the character of its citizens. Truths so obvious would not have been stated here, were it not evident, that, though never denied, they are generally disregarded, and with respect to them, very little of that conviction which produces corresponding action, is to be found in the community.

Hitherto, intellectual education has been the chief object of our public schools. Although in our system of intellectual instruction, there is room for many improvements, yet in this department, the public schools are not behind those of private teachers ; and in the branches taught in them, the pupils will, we believe, sustain a fair comparison with those of any, even the most costly private seminary in the

country. The exhibitions of our public schools justify this assertion. Physical and moral education have received less attention, we might almost say no attention among us, as a public object. Many persons are of opinion, that these departments belong exclusively to home culture. They might undoubtedly be accomplished in the domestic circle, if parents had the leisure, knowledge, and money requisite. The question, however, is not whether this might be, but whether this actually *is* done ; for, as was said above, it concerns the State vitally to have it done, universally, and with fidelity. We know that want of health and strength deprives society of the labor of the individual so disabled, and renders him a burden instead of a helper to the community.

Moral deficiency is even worse than this ; a very few vicious characters are sufficient to destroy the peace, contaminate the innocence, and endanger the safety of a city. We feel justified, in assuming that improvement in moral education is needed among us ; or in other words, that our youth are not as innocent and virtuous as it is possible they might (with all the imperfections of human nature) become ; and that any plan, which proposes to lead them to the cultivation of purity and virtue, is worthy attention ; and if, on examination, it is thought to be feasible, ought not to be rejected.

The influences which go to form the sum of individual, and therefore of national character, are infinitely varied ; each has a limited and often a hidden sphere of operation, and this brings doubt and difficulty into the business of public education,—acknowledged by all to be a most important concern, yet despaired of by many, as offering no fixed principle, opening no certain road to its objects.

We are about to take up one of these minor, unobserved means of influence. If it can be shown that its operation,

though small, is, as far as it goes, salutary, and that it is of easy attainment, we do not see how it can be conscientiously disregarded by the trustees of public education. As yet, we are not so overstocked with good influences, as to render it advisable to reject any which may be offered.

Linear Drawing is a valuable acquisition, both on account of its moral and intellectual influences, and its use in the arts and business of life. And first, in a moral point of view, it affords innocent occupation and amusement. Occupation and amusement are things children will have ; it is a demand of their nature. No systematic provision is made for the last of these — amusement ; and a very incomplete one for the former. The long winter evenings, and yet longer summer days, present many unappropriated, unprovided-for hours ; now one such hour, — what mischief will it not furnish to the vacant mind, the unemployed eyes and hands of a child ! But give him a taste for anything interesting, innocent and attainable, he will never be at a loss for something to do. When the lessons are learned, the business of the day finished, the street amusements (for our children, with individual exceptions, rely chiefly on these) have ceased, he will not sit down listlessly, or busy himself in meddling with what is troublesome to others or hurtful to himself ; but with a pencil and slate, or paper, nay, with a bit of charcoal and a shingle, he will be charmed in delineating the forms of objects he has observed (and observed all the more accurately, for the purpose of imitating them) in his daily walks. Nor, secondly, is the intellectual influence less apparent. This simple recreation always at hand, never troublesome or expensive, cultivates in him the powers of observation, of curiosity, of comparison, and of imitation. It exercises his eye, his hand, his attention, his discrimination — invention. A child cannot look at a house, a bridge, or a tree, or any

object whatever, with the design to make a drawing of it, that every one of these faculties is not brought into action. And what is the great purpose of education? not merely the knowledge of this or that fact or principle; but the free use, the fair developement of all our faculties, ready for any application which after life may demand.

The direct influence which the taste and talent for drawing exerts on the moral feelings, is worthy attention. It leads to a careful observation and a true enjoyment of the beauties of nature and art; it develops and feeds that precious element of our nature, the sentiment of the beautiful—universally diffused, and designed to elevate and refine the soul, to turn it from gross enjoyments, to tranquillize its ruder passions, and lead it, by the pure delight it supplies, from self and selfish gratifications, to high and holy objects. Those only, in whose souls this sentiment has been developed by education, know how vivid and satisfying is the delight experienced from music, from the visible beauties of nature, and the works of the fine arts; and the mind which has once acquired a relish for such refined pleasures, will surely find in this taste, some protection from the attacks of vicious and low desires. And thirdly, drawing is a talent which may always be turned to use. There is scarcely a trade, profession, or science which does not require its aid. It conveys knowledge which could in no other way be imparted, and those who can exercise it, whether male or female, are in possession of a certain means of earning a subsistence. There is an increasing demand for artists, to draw plans, patterns, anatomical, botanical, and other scientific representations, and diagrams. Not a patent for a machine can be taken out, unless a correct drawing accompany the petition. Not a lecturer on any subject which embraces objects of sight, such as Astronomy, Geology, Natural History, Scenery,

or the Mechanical Powers, but must rely on some artist for his diagrams and drawings ; without which, he would in vain attempt to communicate clear ideas to the audience he addresses. There is scarcely an individual to be met with, who will not admit that he has often wished he possessed the power to delineate, even in a rude style, the object he has occasion to describe or remember. Next to writing, the art of drawing is of general use, and its acquisition will be valuable, whatever may be the business or condition of life.

This art may be taught in our public schools, with very little expense of time or money. By the plan here presented, it will be seen that one person may teach (and that in the best manner, as far as regards linear drawing) fifty pupils at a time. If the room in which he teaches were arranged conveniently, with circular seats, two hundred might be taught at once ; so that it is evident, that a few instructors might teach all the children of a suitable age, in Boston, without laboring more than during the hours usually given to business.

As the time of males is more costly than that of females, and as it is desirable to increase the resources by which the latter can earn their own subsistence, we would recommend that the employment should be given to young ladies. It would not be difficult to find a number in this city, well qualified, who would gladly accept the office for a reasonable compensation. It is recommended that the hour previous to that of dismissal, when the pupils have become wearied with more laborious studies, be appropriated, on two days of the week, for drawing lessons, and that a lady be selected for each of the public schools, to instruct in this branch. The teacher should be required to furnish her own patterns, and the pupils their own pencils, drawing-books, or slates. Good patterns are an important part of

instruction ; they must be interesting, adapted to every stage of progress, and abundant, so that each pupil can take home, for practice, one after each lesson. A good draughtsman could easily supply these ; and having once completed a number equal to that of the scholars, they would, by changing, last a long time. Thus, fifty patterns would last a school of fifty scholars, twenty-five weeks.

The experiment might at first be limited to the two highest classes in every school, although the instruction would be as advantageous, and in a moral point of view, even more so, to the younger children.

An experiment has already been made, on a small scale, with satisfactory results ; the details of which are here given, as nearly as possible, in the words of the instructor, in the hope that it may serve as a guide to those who may undertake to teach in the public schools. Fifty pupils have been taught gratuitously by a lady, at the Franklin School, during the past winter, (1838-9.) They have received one lesson (three fourths of an hour long) a week, and there has been about twenty lessons. As attendance on the part of the pupils was altogether optional, and as they gave to the lessons a period reserved for recreation, and when they were fatigued by the morning school, the circumstances were less favorable than might be selected. The result answered the expectations of the teacher.

METHOD OF TEACHING LINEAR DRAWING.

ADAPTED TO PUBLIC SCHOOLS.

FIRST LESSON.

A BLACK-BOARD should be procured of sufficient size, say from four to six feet square, and placed in a position to be seen by all the pupils, on a platform elevated a foot or two above the level on which the pupils are seated at desks. The pupils should be arranged in rows, as far back as they can conveniently see the board. From four to six may sit on each side of the centre, at convenient distances, if the seats are in right lines, and fifty children can be accommodated on this plan, and be taught by one instructor. If the seats are in curved lines, a greater number may be taught at one time.

The lessons should not be over one hour long ; two lessons a week are sufficient.

The teacher being provided with a chalk pencil, and a sponge or napkin, standing in front of the board, commences after the following manner :

Dear Children — The object of our coming together is rather a matter of recreation than labor. The art of drawing, which it is my intention to teach, though it may require some study and effort at first, will be, when once acquired, a never-failing source of pleasure and improvement, a useful aid to the acquisition of knowledge, and an innocent and attractive amusement in your leisure hours. *Leisure* hours we hope you may all have, but not idle ones.

Drawing is the art of delineating the forms of solid objects on a flat surface, like a slate, or sheet of paper.

To do this, two things are necessary. First, an accurate observation of the object to be drawn ; and second, such a command of the movements of the hand, as will enable you to draw any form you desire. Of these two the first is by no means the least important ; unless you have an exact idea of the object you design to draw, your lines will be timid and false. In order to do *any thing* well, you must first conceive clearly, what you are about to do.

In drawing there are four different sorts of lines — horizontal, perpendicular, oblique, curved. (Point to a, b, c, d.*)

A horizontal line is, as you see, level. It is not inclined either up or down.

I draw a horizontal line : is this line which I have drawn level ?

Pupils. — No.

Teacher. — Which way does it incline, up or down ?

P. — Down.

T. — I do not rub it out, because I might in a second attempt make the same error ; but, observing that it is inclined down, I draw a line, beginning at the same point, and carrying it a little above the first one ; this, you perceive, is horizontal.

You will now all draw a horizontal line.

Teacher waits till all have drawn the line, and then goes on.

T. — You will each have the goodness to examine the line you have drawn ; if it is not exactly level, or horizontal, correct it. If it incline down, draw another above it ; if it incline up, draw another below it ; and having assured yourselves that it is at last right, rub out the false line.

Do not use a ruler. I presume you can all draw a straight line by the use of a ruler ; at least it would not be worth while for me to come here to teach you to *rule* a line ; what you want, is to acquire the power of drawing a hori-

* The letters refer to plates which should accompany the book, and be facsimiles of the drawings used here, except in size ; those used by the teacher being much larger.

horizontal line without the aid of a ruler, and that you can certainly do after a little practice, if you will follow my instructions. When you have determined the length of the line you intend to draw, make a point E, and as nearly as possible on the same level, make another point F, at the distance required, beginning at the first point; keep your eye and your mind fixed on the second, as you draw, thus, from one to the other. If you know precisely where you are to go to when you set out, you will draw with force and accuracy.

This is a rule you may apply with advantage to almost every thing you do in life.

The next line is a perpendicular. Observe, a perpendicular line is one which inclines neither to the right nor the left. Notice how I hold my hand in drawing it. I keep the wrist stationary, drawing as far as I can by stretching out the middle finger, which is two or three inches, then remove the wrist lower down, and continue in this way, till the line is as long as required. (This, to be well understood, needs to be seen.)

T.—Is this line G, perfectly perpendicular?

P.—Yes.

T.—Draw it.

Teacher waits till all have drawn it.*

T.—I now proceed to these lines, (K L M,) (pointing to them on the pattern.)

They are oblique, slanting; you will observe that some of them slant more, others less. I shall draw this, (K.) In order to know exactly how much it slants, that is, varies from a perpendicular or horizontal line, compare it with one of these. If I hold my pencil horizontally under, you perceive it makes with it, an angle of about forty-five degrees; that is, half a right-angle.

(Here, if the pupils have not been previously taught it, the teacher should describe, and draw a circle, and show what portion or portions are included in different sized angles. The pupils should be able to tell on seeing any

* The pattern must be placed immediately over the black-board; to this the teacher refers.

angle, what number of degrees expresses its size, and also they should know that it is that portion of a circle embraced by the angle, and not any definite measured space which constitutes the size, as expressed by degrees.)

Therefore, in order to draw a line like K, you must make it slant just so much, that, with a horizontal, it makes an angle of forty-five degrees. The next line, L, slants less. It makes, with a horizontal, an angle of twenty-two degrees. The third line, M, varies from a perpendicular about fifteen degrees. Compare it with a perpendicular, draw it first, and then place your pencil perpendicularly by its side. In this way you can copy any oblique line exactly, without measuring. You must practice this method a great deal : the more you practice it, the more readily and correctly will you draw ; for it is not my teaching merely, which is to make you acquire the art of drawing, but your own practice. All I can do is to show you how to practice, and give you a few rules by which you will practice to advantage.

The next lines are curved lines. If you endeavor to imitate this half circle, N, you will not succeed after many times trying. I will give you a rule by which you can do it at once.

Observe the breadth or diameter of this semi-circle. Draw a horizontal line any length you choose, divide it exactly in halves, raise a perpendicular on this centre, (O,) just as long as one half your horizontal line, (observe that the size of your drawing is not important, but only that the proportions be such as I have named, viz. the perpendicular line exactly in the centre of the horizontal, and half its length.) I shall wait till you have all examined your drawing, and corrected it, if necessary ; do not rest satisfied with any thing short of perfect correctness in the early stages of learning ; one right step is worth a hundred false ones. Are all ready ?

P.—Yes.

T.—Now draw a slant line from the top of the perpendicular P, to the left termination of the horizontal Q, and the same to the right side R, then draw on the left side P Q, a curve from one point to the other. Observe how much it varies from the straight line on which it is drawn ; draw a similar curve on the other side, comparing it with

the straight line on that side : by this comparison you can easily judge whether the curve is just rounding enough to form a quarter of the circle of which your horizontal line is the diameter, and of course your perpendicular the radius ; and you can also judge if the second side is like the first, and they both together form a true half circle.

In the same way you can draw arches and curves, of any form or size.

Teacher proceeds to draw the arches S and T, by the same method.

T.— When there is more than one arch, or a row of arches or curves, as U or V, proceed thus :

Draw a horizontal line, (see U,) divide it in two equal parts, one for each arch. Observe the height of the arch : it is not, as in the case of the semicircle, exactly one-half the base ; but a little more, viz., two thirds. Raise, at the left-hand termination, a perpendicular, the height of the arch, viz., two thirds the base, and from this point draw a horizontal line, which will be parallel with that just drawn, thus. (Teacher draws these on the black-board, — waits till the pupils have copied them.) This top line is to insure your getting both arches of the same height ; then divide the base for each arch exactly in half, and raise a perpendicular from this point to the height of the upper line ; from the top of this perpendicular, in both arches, (a b,) draw slant lines to the base, on either side, and curves on them, as you did with the semicircle, — observing that these curves rise less above the straight line, and therefore, that this figure is not a semicircle, but a pointed arch. — Teacher completes the figure, while giving the instructions, and then waits till the pupils have copied it ; (employing the time in noting who are most attentive, — who rub out their lines most frequently, — if any make use of a ruler, — if any talk or disturb their neighbors, &c., — all of which should be noticed in a mild, affectionate, encouraging manner. As soon as the Teacher has learned the names of his pupils, and, by observations like those recommended above, become acquainted with their different habits and propensities, he may exert an influence adapted to each, which will quicken their powers, and command

their attention, to a greater degree than would be believed by such as do not include in their plan of instruction, a study of and adaptation to, the characters of their pupils.)

Teacher.—This includes every variety of line you will be required to draw; therefore, I advise you to become as perfect as possible in these, by practicing them thoroughly, before the next lesson. A week will give you sufficient time for this. A pencil and slate, or bit of paper, or a piece of charcoal and a board, are all the materials you need, to enable you to succeed; and it will be important to do this, before we proceed farther.

SECOND LESSON.

I SHALL, during the course of this lesson, be able to judge who have attended to my instructions and practiced them thoroughly, and how many of you will probably draw well. You may be surprised that I should undertake to form an opinion so soon; but I have usually found, that those who have patience and industry to acquire the first steps or elements of any art or science perfectly, find the succeeding part so easy, that they proceed with pleasure and alacrity. The French have a proverb, the translation of which is, “It is only the first step which costs.”—This, though not literally true, is more so than perhaps many of you imagine.

I begin now to put together the lines you have learned to draw; and by these combinations, produce the forms of various objects.

If you look at this book, (holds up a book in a position in which all can see it,) you can any of you tell me whether it is longer than it is broad.

Pupils.—It is.

Teacher.—Look at this, (presenting another,) is this longer than it is broad?

P.—No.

T.— What form is it?

P.— About square.

T.— Thus you perceive that when you look at an object, you can tell whether it is longer than it is broad, whether it is round, square, &c. Compare these two books, (presenting two :) are they both of a size?

P.— No.

T.— Which is the larger?

P.— That in the right hand.

T.— Therefore, if you observe and compare two or more objects, you can tell which is the larger or smaller.

Observe this figure A ; (pointing to the pattern,) it is a door — is it higher than it is wide?

P.— It is.

T.— How much?

Pupils hesitate to give an answer.

T.— Is it twice as high, or is it once and a half?

P.— It is twice as high.

T.— You are right. I now draw two parallel perpendicular lines, at what I judge to be the right width apart, (you may make them of any width you choose,) and a horizontal line at the top to join them — do this.

Teacher waits till the pupils have copied this, and then proceeds : I am now to draw the bottom line ; but before doing this, I observe the length of the door, and finding it to be twice the width, as you have already said, I mark that on the perpendicular line, and at this point, B, draw the bottom line, which completes the figure — do this.

I now add a second line on each of the four sides, exactly parallel. This is for the casing, or architrave, as it is called. The space must be the same on each side. It is, you will observe, about an eighth part the width of the door. There is a latch — how far down? half way, or more?

P.— A little more.

T.— Yes. Make it there.

T.— And the hinges — which are an eighth part the whole height, from the casing.

T.— Look over your drawing. Have you preserved the proportion? Are your lines straight? You can judge

of this as well as I can ; and were I to examine each one, there would be no more time left for farther instruction during this lesson. I wait for you to make any corrections you wish. If any of you have drawn a figure either longer or shorter than in the proportion of twice the width for the length, you may have drawn an outline of a door, but not of this one ; and you will remember, that when we undertake to do any thing, it is very desirable to be able to do that thing which we undertake, and not another.

T.—I now proceed to draw these windows, C D. Teacher proceeds after the former method, adding,—Observe how many crossing bars there are, and their proportion to the whole—draws the windows, on the board, stopping between the several parts, for the pupils to copy, before proceeding farther. (It simplifies the process, renders it easier, and therefore more attractive, to the scholar, to follow step by step, than to be required to copy a complicated figure at once.)

T.—This next figure, E, is the front of a house. Observe the height of the wall, as compared with the width, without the roof. It is nearly square—not quite. Which must be the longer lines—the horizontal, or the perpendicular?

P.—The horizontal.

T.—Yes. I draw a figure nearly square—the longer part the horizontal. Copy this. Take time; do not use a ruler; observe the proportions.

When done, the Teacher proceeds : Mark the centre of F, and draw a perpendicular line through this point, rising above the top.

T.—Mark, on this perpendicular, the height of the roof, thus: G but how are you to discover the exact distance of the point G? by looking at it?

P.—Yes.

T.—If you were to look at it for an hour, without comparing it with some other line in the figure, you could not hit right. Compare it with the width, that is, the top horizontal line. What portion of that is it?

P.—Half.

T.—Exactly.—Mark this point, and draw from it two

slant lines to either side ; and then draw parallel lines over them.

T. — There is a door. Where is it placed ?

P. — In the middle.

T. — The line from the roof marks the centre, or place for the door. How high is it ? half ?

P. — No, — more.

T. — It is nearly three-fourths of the height of the wall of the house : how wide is it ?

P. — A quarter of the whole house.

T. — This is nearly right ; but a better way to judge of the proportion, is to compare the width of the door with its own height. In this case, it is half as wide as it is high. See me draw it. Observe if I draw it correctly, and tell me if I do not.

P. — One side is not quite straight.

T. — Which side ? the right ?

P. — Yes.

T. — Which way does it lean ? out, or in ?

P. — Out.

T. — I then draw a line a little inside, then erase the outer line. Does this look straight ?

P. — Yes.

T. — Now you may try to do it, and avoid, if you can, the mistake I made.

There are two windows. Observe the proportion they bear to the whole house. They occupy about a third part of the space between the bottom and top lines of the house, and are nearly square. Having determined on the space, I draw lines for the top and bottom part of the windows, quite across the house, that they may both be of the same height and size ; their place is exactly between the door and the side of the house. Mark this place, draw the top of each window, then the sides, then the bottom lines. [Teacher waits for the pupils to draw each line after her.]

T. — There is a window, in the attic, of the same size, and its distance from the base line of the roof is just one half of the window. I leave you to draw this before *me*, and I will put it into mine *after you*.

After this method the lessons may be given through every stage of instruction; they might be written out in detail, to accompany each pattern, but it is presumed that the foregoing lessons are sufficient to show the mode of teaching.

As soon as a correct idea of proportion, the habit of accurate observation, and a command of the movements of the hand, are attained, the elements of perspective, and the right disposition of light and shade, should be taught; and the pupils should, if possible, be made to draw from objects.

It ought to be the aim of the teacher to give his pupils the power of delineating in true proportion and perspective, and with expression, the outline of every object met with in common life, animate and inanimate. The pleasure, utility, and moral and intellectual benefit, which would result from the possession of such a power, are beyond calculation.

A specimen of the patterns used, on a small scale, are appended to this book. More than fifty patterns have been prepared, some of them large and distinct enough to be seen clearly at a distance of twenty or thirty feet; and others smaller, designed for the scholars to copy at home.

THIRD LESSON.

DRAWING FROM DESCRIPTION FOR ARCHITECTURAL PLANS.

Teacher.—If a person intends to have a house built, he desires to see a drawing and plan of such a house as he thinks would suit him, because he can, by this method, form a judgment of what would meet his wishes. He therefore goes to some artist, and requests him to prepare a plan and elevation, according to the description given.

We will suppose the application made to us, and I will teach you how to make these drawings. They are much in demand, and well paid for.

A gentleman comes to us, and says, "Will you draw me the elevation of a house?" Elevation means simply the front, or only one side or face of the building in question, in a front view. This can be done without any knowledge of perspective. But if you are to represent two sides, your drawing must be what is called a perspective view. You are not yet qualified to execute this, as you know nothing of perspective. It is my intention to teach it to you after a few more lessons on the present subject. I consider instruction in drawing very imperfect without perspective.

This house, of which we are required to draw the elevation, has the following dimensions. Please to write them, after me, as I do on the board, in the corner of your page or slate. Front, forty feet; hall, through the middle, ten feet; rooms on each side the hall, fifteen feet each, — two stories; lower story, twelve feet ceiling, (that is, high); upper story, eight feet; roof, ten feet pitch. Have you all written these dimensions legibly, so that you can refer to them readily?

Ans. — Yes.

T. — Having done this, draw a horizontal line across the top of your page, A; divide this in halves, by making a mark thus, B; divide each of these halves again, C C. How many parts have you?

A. — Four.

T. — Divide each of these four parts again, equally, as d, d, d, d. How many parts have you now?

A. — Eight.

T. — Call each of these parts five feet, and number them thus, 5, 10, 15, 20, 25, 30, 35, 40. Mark the first of these parts with five equal divisions; these smaller divisions answer to one foot each. In order to divide a given line into five equal parts, take the following method, which I will exhibit on a larger scale below, that you may all see it. Take this line; divide it in halves exactly, thus; put into each half two and a half divisions, thus; there will be two divisions on each side, and the two half divisions will complete the fifth. This is sufficiently accurate for our present purpose. This line, with its divisions,

is called a scale ; its use will presently appear. Have you all completed your scale ?

A. — Yes.

T. — Then we will proceed to erect our house. Draw a horizontal line, thus, D D. Measure forty feet of your scale, and make the line of that length. Observe how I do this. I take a narrow strip of white paper, lay it along even with my scale, and mark on it all my divisions, and write the figures. Thus I have a copy of my scale, which I can move, and apply to my drawing. This is a convenience ; it answers instead of dividers. If you have dividers, it is well to use them, but they are not necessary in learning ; nor is it worth while to require all the pupils of a school to be furnished with them. I have prepared a sufficient number of these strips of paper for your use ; they will be handed to you. This is done at the request of the teacher, by one of the pupils.

You have marked on your horizontal line a space equal to forty feet of your scale ; this is the base line of the house. Raise perpendiculars from each end of the line, of an indefinite height, (that is, you need not be particular as to the exact height. When they are drawn, you will measure them.) Look at the description, and tell me how high the house is to be, without the roof. You will remember there are two stories ; the first twelve, the second eight feet.

A. — Twenty feet.

T. — Yes. Measure twenty feet from your scale, and mark this length on the perpendicular lines, thus, E E ; draw a horizontal line from the first point to the second, thus. You have now drawn the outline of the front wall of the house. This is a rectangular figure. Why is it rectangular ? If there is no answer, teacher says, because the corners make right angles ; the sides are formed of horizontal and perpendicular lines. If either of the sides was a slanting or oblique line, the figure would not be rectangular. Is this figure square, or is it broader than it is high ?

A. — It is broader than it is high.

T. — In what proportion ? If none answer rightly,

teacher says, in the proportion of 40 to 20 ; there are four tens in 40, and two, in 20 ; therefore the proportion is as 4 to 2, or height half the breadth.

The next thing to be drawn is the roof, F. This, you recollect, is 10 feet pitch. Divide the top line equally, and raise from the centre C, a perpendicular. Mark on this 10 feet from your scale, making the point H ; from this point draw slant lines to the corner. Now we have an outline of the whole front. I wait till you have completed your drawing as far as mine. We will now inquire what windows are to be made, and if there is to be a door.

The lower story has two long windows, to the floor, 3 feet wide, each ; also a door in the centre, 4 feet in width. The height of both windows and door is 9 feet. Write this down under the other minutes of the description.

What we are now to do requires particular attention. Mark first the size for the rooms, 15 feet each, leaving 10 in the centre, for the hall. If the windows are to be 3 feet, and exactly in the middle of the room, how much space will be left on each side of the window ? Cannot you calculate it ? Take 3 from 15, how many remain ?

A.—12.

T.— Half of 12 is 6 ; then there will be 6 feet on each side of the window, and that being 3 feet, makes up the whole 15 feet, which is the size of the room. Mark off 6 feet at each corner of the rooms, thus, I J K L, which leaves the space for the windows, viz., 3 feet. The hall is 10 feet ; of this space take 4 feet for the door, and how many will you leave on each side ? 4 from 10 leaves ?

A.—6.

T.— Half of 6 is ?

A.—3.

T.— Then how many feet on each side the door ?

A.—3.

T.— Apply your scale, and measure 3 feet on each side the hall ; the remainder will be 4 for the door. I will make these divisions, after which you may make similar ones on your drawing. Have you all succeeded in marking the divisions for the doors and windows correctly ? if

not, ask any questions you wish ; it is not difficult, but requires time and attention.

Measure 9 feet, the height of the windows in the lower story ; mark it on the perpendicular line of the house, M, and draw a horizontal line across the house ; this is for the top of the window. Raise perpendiculars from the divisions below to this line, and mark the tops of the window and the door darker than the remainder of the horizontal line. The next thing to be done is the upper windows ; they are of the same width as the lower ones. That over the door is only 3 feet, like the others. The windows are 4 feet high, one foot from the roof, and three from the floor. Measure first the one foot from the roof, then the four feet for the window ; draw horizontal lines from these measures for the top and bottom of the windows, and mark them darker where the windows are to be, N O P. There is to be one window in the attic ; for as the roof is ten feet high, it will admit of a good room there. This window is three feet from the top line of the house, is three feet high, and the same width (3 feet) as the window below it ; it is in the centre. Measure these spaces ; first the three feet from the top line of the house, and next three feet for the height of the window ; the lines for the window below determine the width and the situation. I do not add chimneys, as this would be too complicated for a first lesson. Now if you do not like the appearance of this house, we can draw another of different proportions, until one pleasing us is obtained ; and then we may go on and build with satisfaction. But if we begin without a plan, it is not probable that the house will be approved when it is finished. Do you ever build martin houses ? If you do, pray draw a plan first. You will find it far easier to work with a plan, and you will get a prettier house. The principal beauty in architecture, is proportion. I wish you to look at the buildings in the streets, as you walk home from school, and observe which please the eye, and which do not. You will soon discover what proportions are pleasing, and prefer them to such as are not. We must not sacrifice utility to beauty, in architecture, but endeavor as far as possible to unite them. Thus, when you grow up, if you

save houses or stores built, or if you are on a committee to build a church, or a school-house, endeavor to select such proportions as conform to the rules of beauty, so far as this can be done without inconvenience in the internal arrangements. If any one says to you, what is the use of beauty? you can answer, to refine and elevate the character, and afford us a pure and innocent gratification. Would God have made the flowers so beautiful, and given such rich and brilliant plumage to the birds, if beauty were not a good thing, and worth cultivating?

FOURTH LESSON.

ON GROUND PLANS.

In the last lesson, I endeavored to teach you how to draw an elevation, from description; in this, I propose to show you the method of drawing the ground plan, or internal divisions and arrangements of the house. No house carpenter can commence his work, till such a plan is in his possession. He must know the size of the rooms, before he can cut his beams, and get out his frame work. The house we drew last lesson, had a front of forty feet; nothing was said of its depth. Now we must know that, before we can begin the ground plan. The rooms, you remember, were fifteen feet on the front; they would not be well proportioned, if they exceeded eighteen or twenty feet in length; and, supposing there were to be two rooms in the depth, how many feet deep must the house be, if the rooms were eighteen feet?

A. — Thirty-six.

T. — Then the house is forty by thirty-six. Let us first draw this. If you have your scale as prepared for the last lesson, begin by drawing a horizontal line indefinitely, and a perpendicular to meet it at one end, forming a right angle. Measure on the horizontal side, which is the front,

forty feet, from the scale. How many feet must we measure for this side? two rooms, you know, 18 feet each.

A. — Thirty-six.

T. — Yes; mark these, P Q, and draw the other two sides. Now we have an outline or plan of the first floor. Let us first make the hall ten feet wide, through the house; draw two lines at right angles with the front, R S. We will write down the dimensions of the rooms, that there may be no mistake. As there are thirty-six feet, we can have two rooms on each side the hall; would it not be convenient to have those on the right side open into each other, with folding-doors, and to have the front one larger than the back? This will be needed, perhaps, for a large family, who dine together on Christmas or Thanksgiving day. Let the front room, then, be twenty feet, and the back, sixteen. On the other side, we will have the front room only fifteen feet, a small breakfast-room or library, and the back one eighteen, which will leave three feet between for a passage, and a pantry. Write these dimensions down, viz., front room on the right of the hall, 15 by 20; front room, on the left, 15 by 15; back room, on the right, 15 by 18; do. on the left, 16 by 15; passage, 3 feet. Have you all written this?

A. — Yes.

T. — Now measure twenty feet of your scale, and set it off on the outside, as I have done, T; draw from this point a horizontal line to the hall; this gives you the two rooms on the right side. Measure fifteen feet, for the front room on the left side, and draw a line to the hall, W, the three feet for the passage, and draw another line thus, X, these give the divisions for this side: divide the space between the rooms, ten feet for the pantry and five for the passage, Y. This is sufficient for one lesson. In the next, you can mark out the doors, windows, and fire-places, for this floor.

As we design only to give a specimen of the *method* of teaching, and not a course of instruction, the succeeding lessons are not here detailed. Plans of lots of land, of garden spots, avenues, streets, &c., should be included in this course. Every facility of this sort is of great use to men of business, and may, by a farther prosecution of the subject, furnish a means of subsistence.

FIFTH LESSON.

ON PERSPECTIVE.

Teacher.—I wish to teach you something of perspective. Unless you understand this subject, you cannot draw from objects, but must be content with merely copying drawings made by others. It is both useful and agreeable to copy, but far more so to originate. Each one of you may understand perspective enough, to draw from nature, and from objects correctly, by attending to the lessons I shall give. The subject is a dry one, and rather difficult to be understood at first. I therefore request that all those who do not feel a sufficient interest in learning to give a close attention to what I say, would leave the school room. Nothing but a strong desire to make yourselves acquainted with perspective, will induce you to go through the labor of following me in these lessons.

As you are all now placed, in your seats, each one is opposite some spot or part of the side of the room before you. Those nearest the aisle, are opposite the centre of the black-board; the next row on the right, are opposite this right hand end of the board; and the row on the left, are opposite to the other end, or termination of the board; those beyond, are opposite the window. Wherever you are, you must be opposite some point or other. If you were out of doors, and looking at the view around you, you would, as soon as you became stationery, be opposite some tree, hill, house, sheet of water, fence, or other object. The point in the scene you are viewing, which is opposite your eye, is called the *point of sight*. What is called the point of sight?

A.—The point opposite the eye.

T.—Please to remember this; it is one idea in perspective; it is not of much use alone, but when you get two or three other ideas combined with it, you will find this one, of the point of sight, very important.

The point opposite your eye, is the point of sight: ob-

serve, it is not higher or lower than your eye, but exactly the same height. You are all sitting on the same level; the eye of each one, allowing for a slight difference in your size, is opposite a point at the same distance from the floor, viz., about three and a half or four feet. If you were to stand up, your point of sight would be higher, and if you stood on your seats, it would be still higher. Thus, you perceive, that the height of your point of sight depends on your position; it is low, if you are sitting or standing on the ground; high, if you are placed on an elevation. Now you have two ideas in perspective; the first is, that the point exactly opposite your eye, (neither on the right hand nor the left,) is the point of sight; and the second idea is, that the height of this point from the ground, depends on your own position, viz., whether you are high or low. To illustrate this, I will draw this black-board, as it looks to those sitting next the aisle. Their eye is opposite the centre of the board, and about a third of the distance from the bottom. I make a point, thus, A ; through this, I draw a horizontal line. This is called the horizon line; remember the name. What is this line, drawn through the point of sight?

A. — Horizon line.

T. — Whatever in the original scene or object, is *above* your eye, must be drawn *above* the horizon line; whatever is *below* your eye, is drawn *below* the line. On looking at this board, you observe that two thirds of it are above your eye, and one third below. I make the line for the top of the board, two thirds, and the line for the bottom, one third from the horizon line. As the point of sight is in the middle of the board, I draw the sides equally distant from the point of sight, taking care to observe the proportions which are in this board, viz., length, one third more than the width. You perceive that the horizon line helps you to find the place for the parts of the view you are drawing, such parts as are above your eye, being above the line; such as are below the eye, are below the line. The next subject to which I would direct your attention, is that of planes. When you speak of a plane, you mean a level, flat surface, do you not?

A.—Yes.

T.—The floor of the room is a plane, and the wall or side is a plane. Can you tell me what sort of a plane the floor is? No answer. It is a horizontal plane, and the walls are perpendicular planes. What sort of a plane is this board as it now stands, upright?

A.—Perpendicular.

T.—There is another sort of plane, called inclined plane, like your desks. Will you write these names down in your books, viz., horizontal, perpendicular, and inclined planes? Look at this book, as I now hold it, upright before you: the cover is a perpendicular plane. It is parallel with you; that is, it is equally near, and on a line parallel with the line of your seat. Will you remember this? the book, as I now hold it, is a perpendicular plane, parallel with the beholder, viz., with yourselves; for it is you who are beholding it, not me. But if I turn it thus, endwise, it is not parallel with you, but at right angles; the line of the book makes a right angle with the line of your seats. If there are any present who do not understand what a right angle means, let them hold up their hands. (Teacher explains.) You should be familiar with this idea, a perpendicular line meeting a horizontal, makes a right angle with it. Now observe that this book, when placed at right angles with you, is not equally near in all its parts, but this end next *me*, is farther from *you* than the other. You are aware that things look smaller when far off than when near; this end, therefore, of the book, looks smaller to your eye than the other, and to represent it correctly in this position, by a drawing, you must draw one side smaller than the other, although, in reality, both sides, or boundary lines, are of the same length. There is a rule for doing this, which I will show you presently. Meantime, I wish you to remember this fact, that perpendicular planes, standing at right angles with the beholder, recede from the eye, and are drawn smaller at the end farther from the eye, than at that nearer the eye.

If I hold the book in this position, it is a horizontal plane; if I lay it on the floor, it is below the eye, and you see the top of it; if I hold it as high as I can reach, it is above the

eye, and you see the under part; it is, in either case, a horizontal plane. Now you observe that the edge, and part of the book next you, is nearer the eye than the part next me; it recedes from the eye, like the plane at right angles, and must be drawn smaller at one end than at the other. A plane which recedes from the eye, is said to vanish. Lines on them, as the top and bottom line, which bound the book, or any other lines on it, *parallel* with the top and bottom, vanish, or recede, and are called vanishing lines.

I now proceed to show you the rules by which such planes as I have exhibited, may be drawn correctly. Suppose you were looking out of a window placed at the distance of a few feet, at a house, with an intention to draw it. If you had a pencil long enough to reach the window, you would mark on the glass the outline of the objects seen through the pane, and the drawing would be correct. A correct drawing of any object, is just what would appear to the eye, looking at it through an upright pane of glass, or window, placed a few feet from the beholder.

Here is a model of a house. In the position in which it is placed, some of you can see the front only, because it is before your eye; others can see the front, and one of the ends or sides, because it is a little to their right or left. Teacher asks those in the middle, What part do you see?

A. — Only the front.

T. — You, on the right side?

A. — The front, and the right side the end next me.

T. — Those on the left?

A. — The front, and the end next me, the left.

T. — This house is a rectangular, solid object. If it is placed on the right hand or on the left, you can see the front and one side. I will now draw it as it looks to those on the right. I observe that your eye is a little way above the bottom, or base line of the house. I make a point, and through this draw the horizon line. The house stands on your right. How far on the right?

A. — Not far.

T. — But we must be exact. Your eye is opposite this window; do you think, that if I had a line three times as

long as the front of the house, it would reach from the house to the window, viz., to a point opposite the window, carrying the line straight and parallel with your seat?

A. — Yes.

T. — Let us decide on the width of the house, and then place it at three times its width from the point of sight; (B C, house, S, point of sight, H, horizon line.) We first draw the front, which is a parallel perpendicular plane, and does not recede or vanish; it is drawn like the house, rectangular, but *smaller* than the real house, because it is at some distance; the base line is one quarter the whole height below the eye. I have drawn it so — you will do the same, and write S, for point of sight, and H, for horizon line. The next thing we are to draw, is the end which is at right angles with the beholder, beginning at the termination of the front, thus, D. Draw a line to the point of sight, and the same E, from the bottom. The rule for this is thus expressed: "Planes and lines at right angles with the beholder, vanish in the point of sight." Write this down in your book. This end of the house, although in the original, the same size as the other side, looks smaller, because it recedes, and I finish the side by a line here, F. There is a rule for determining the exact size or place for the line F, which I shall give you in the next lesson. But if you are not fatigued, I will show you the rule for drawing the roof. Draw a perpendicular line through the point of sight, G; draw diagonals from the corners in the vanishing side: this gives the apparent centre, M; from this, raise a perpendicular to the height of the roof. How high must this roof be? half as high as the house itself?

A. — No.

T. — One third?

A. — Yes.

T. — Mark it so, and draw slant lines to the corners; thus you complete the gable end. But the roof is not a perpendicular plane, like the front; it is slanting, inclined, like your desks; it recedes from the eye, and must, therefore, be drawn with vanishing lines, after this manner.

Carry out, or produce, as it is called, this line, N, till it crosses the perpendicular line through the point of sight.

This perpendicular line is called the prime vertical line; write this down near the line. The point where the line from the roof crosses it, is the vanishing point for the roof; draw the other side of the roof to it, O, and a line for the top, from the point, P. The windows in the end are drawn by lines vanishing in the point of sight, from the top and bottom of the window; and the window in the farther side, O, is smaller than in the nearer, R. Draw yours in this manner.

I shall now recapitulate what I have taught you in this lesson : 1st, The point of sight, which is the point opposite the eye ; 2d, The horizon line drawn through it, which marks the height of the eye ; 3d, Planes — perpendicular, horizontal, oblique. Parallel planes are drawn as they are in the original ; perpendicular planes at right angles, vanish in the point of sight ; horizontal, the same, when the lines which bound them are at right angles with the beholder. Inclined planes vanish on the prime vertical line, when they rest on a base parallel to the beholder, as the eaves of the front side of a house like that we have been drawing. If differently situated, there is another rule which you will learn in a future lesson.

This lesson also, is only a specimen of the method recommended. It would require twenty or more to complete the subject, and the teacher should be familiar with it, and able to vary the mode of illustration, and adapt it to the understanding and ages of his pupils.

SIXTH LESSON.

ON OBJECTS.

Teacher.—CAN you tell me what this is?

Ans.—It is an urn, a vase.

T.—Yes ; it is a vase, urn-shaped. I wish you to make an attempt to draw it. You must first observe it accurately.

Compare the width with the height ; is it taller than it is broad ? that is, is its perpendicular line (points to, or designates this, by placing a rod perpendicularly, and then horizontally against the object,) longer than its horizontal ? You need not draw it of the *actual* size, but you must preserve the *proportions* of the urn. Begin thus, by making a perpendicular line, A. You are next to ascertain where the broadest part of the urn comes. Can you tell me how far it is from the bottom ?

A. — Two thirds, three quarters, &c.

T. — Divide the line in halves ; then in quarters. You will find the place for the horizontal line, to be three quarters from the bottom. Draw this horizontal line, B. Observe the smallest part of the urn ; where would you place that ?

A. — Near the bottom.

T. — How near ; a quarter, or a third from the bottom ?

A. — A quarter, third, &c.

T. — The right point is one quarter from the bottom ; draw this line, C. Now observe the proportion of the greatest width of the urn to its length ; what is it ?

A. — Half the length, two thirds, &c.

T. — Exclusive of the handles, it is about half ; therefore, make your upper horizontal line, B, (pointing to it,) half the length of the perpendicular ; one quarter on each side of the centre. These lines are all called guide lines, because they are designed to guide you in drawing the urn. This seems a slow process ; it is, however, a certain one, which is usually the shortest way in the end. Have you all drawn the guide lines, and determined their proportions ? I wait till all are ready. Now look at the urn, and tell me what sort of line will express the form or boundary of the sides. It is not straight ; what is it ?

A. — Waving, serpentine, curved.

T. — Are both sides alike ?

A. — Yes.

T. — Then we must draw them alike. But it is not easy to draw two curved lines exactly alike, unless you have a straight one to compare them with. Comparison is a means of accurate knowledge, especially in objects of

sight. Draw two straight lines, slanting from the extreme width to the point for the narrowest part, D E, thus. (Teacher draws all these lines on the black-board, before requiring it to be done by the pupils.) On this, D, draw a curved line, as nearly as possible resembling the outside of the urn. You will observe that it curves *in* at the top, and *out*, at the bottom part. If your first attempt does not satisfy you, try again; do not hurry, I will wait. Do you perceive that the point where the curve crosses the guide line, is half way? Have you finished this boundary, or outline of that side of the urn which is on your right?

A. — Yes.

T. — Then attempt that on the other side; let it vary from the guide-line, both out and in, just as much as the other, and cross it at the same place. If you do not succeed this time, you will after a few attempts. We will now draw the top of the urn. How much of it can you see; the whole top, or only the half next you?

A. — Only the half next us.

T. — What is the reason of this?

No answer.

T. — Is the urn placed above or below the level of your eye?

A. — Above.

T. — I will place it below; do you see the whole top now?

A. — Nearly, or quite.

T. — Then you perceive, that the *position* of the object, in relation to the eye, regulates the drawing of it. One may know, by the drawing, whether the person who drew the urn, was situated with his eye above or below, or opposite any part of it. You must, therefore, be accurate in marking on your drawing the position of your eye in relation to the object. How high is your eye? Is it higher than the urn, or lower? If I could place a level shelf, or plane, reaching from your eye to the urn, where would it touch the urn? Or, if I laid this rod exactly in a horizontal position, from your eye towards the urn, at what part of it would it point?

Answer may be correct or not. Teacher will perceive,

by the answer, whether the pupils have seized the idea or not, and if not, explain farther, and illustrate it more clearly, until they do.

T. — To some of you, the point level with the eye, will be nearer the top, than to others. I will mark it, as it looks to those whose eye is opposite the smallest part, S. I mark the point, thus, S, and draw a horizontal line through it, of some length ; this line is called the horizon line, and this point, S, the point of sight. It is directly opposite the eye, and the line marks the level of the eye ; that is the horizon. Whatever is above the eye, in the view or object you are drawing, must be drawn above the horizon line. Whatever is below the eye, must be drawn below the horizon line. What do I mean by point of sight ?

A. — That point in the object we are drawing or viewing, which is opposite the eye.

T. — Yes, exactly opposite ; neither to the right hand nor the left ; neither above nor below. And what is the horizon line ?

A. — The line drawn horizontally through the point of sight, marking the level of the eye.

T. — Yes, marking the level ; that is, the horizon of the beholder. If I elevate the urn, you can see the bottom, or under side ; in this case, your point of sight would be below the urn ; if I lower it, you can see the whole top, and your point of sight will be above the urn : in other words, the whole urn will be below your horizon. Look at this line, F, at the top of the urn. What is its form ?

A. — It is rounding, curved.

T. — Does it appear to your eye to go up or down ? Would you draw it thus, G, or thus, H ?

Some answer, up ; others, down. It is not easy to determine rightly, when attention is first directed to this point.

T. — Please to give your attention to what I am going to say. If the line is *above* the eye, it curves up, G ; if *below* the eye, it curves down. The higher it is above the eye, the more it curves up ; the farther it is below, the more it curves down. It is, then, a rule, in representing

the lines on a round or cylindrical surface, like these on the urn, that the nearer they approach the level of the eye, viz., the horizon line, the less they curve, and those *at* this line are straight—that is, horizontal. You will observe this to be the case with the urn; those farthest from the horizon line, S, curve most; those above the point of sight curve up, those below it curve down. I draw each of those lines, F J K L, that at the point of sight, S, is horizontal. You will now do the same. Mark the height of the curve at the top; draw guide lines thus, M N, and on these, *curves*, as nearly as possible resembling the outline of this part of the urn; then add the little figure, or finish at the top. Is the urn completed?

A.—No; the handles are wanting.

T.—I will draw them. Observe accurately the form, and the point at which the curve below touches the side of the urn. You will then be able to draw them alike. Is there nothing more?

A.—Yes, the bottom.

T.—This is a square block, on which the urn stands. This has no curve. You see only one edge, and a part of the top, and you are to draw only what you see. Draw the edge, two parallel lines; finish it at the side, of the true proportion to the urn, O P. They extend almost as far as the widest part of the urn. The lines for the top, or horizontal part, R T, are drawn to meet in the point of sight, and your eye will tell you where the farther side, Y, is just seen from behind the urn.

The drawings made by the teacher during this lesson, should be on a scale large enough to be distinctly seen by all the pupils, as also should be the object itself, the urn. Any other object may be drawn after this method—a pitcher, basket, teapot, &c.

SEVENTH LESSON.

SHADING.

Teacher. — A LITTLE shading of your drawing will increase its resemblance to the original object. When the light falls on a round object, or, indeed, an object of any variety of surface, some parts appear lighter to the eye than others. On this urn the parts nearest to the eye have the most light ; of course, the other part is somewhat in shadow. By shading those receding parts, you give the effect of roundness. The edge of the block on which the urn stands, from its position, which is perpendicular, reflects less light to the eye than the top or horizontal surface, R T, although this edge is rather nearer your eye. The edge must be shaded, the top left light. If the light came from a different direction, the shadows would be different. You have only to place the object in any light you choose, observe the shadows, and copy them as nearly as possible.

USE OF THE SLATE AND BLACK BOARD,

IN TEACHING YOUNG CHILDREN.

LESSON FIRST.

THE use of the black-board for the teacher, and the slate for the pupils, has peculiar and great advantages in the instruction of very young children. It addresses the perceptive powers, and awakens sympathy, and these are the two most powerful means of commanding the attention at that early age. There are few branches, among those proper to be taught in primary schools, which may not be imparted more perfectly and more readily by this method, than by most of those in common use.

A specimen of the method recommended is here given. It is adapted to children between the ages of four and eight years of age.

Let the teacher select a class for exercises with the slate. This exercise should be reserved as a reward, and none admitted to the class who have been guilty of that kind of fault called misdemeanor. There is no objection to requiring children to remain quiet during a short time, as, for instance, an hour, when they first enter the school room. Such studies as are interrupted by noise, should be appointed for this hour. It is difficult for children to refrain from talking and moving, but there are times when this is necessary, for the purpose of their own instruction, and the convenience of others; to enable them to acquire the habit of self-control, and a regard to the accommodation of others, is an object not to be lost sight of. But, on the other

hand, they should not be made to imbibe the idea, that there is any thing wrong in acts so innocent and natural as talking, laughing, and moving, but that these are blamable only when they interfere with processes designed for their own improvement, or with the rights of others. The punishments, therefore, for such faults should never be severe, nor in any respect resembling the punishments appropriated to moral delinquencies. If children wantonly neglect their own duties, or hinder the other pupils, by inattention or noise, to forbid them participating in these more interesting and pleasing exercises, is a just punishment for such offences.

When the class is called, if the children have been sitting for an hour previous, let them stand during the slate exercises, provided these do not continue more than ten or fifteen minutes; otherwise, they should merely change their seats, or at least return to them at the expiration of that time. No child should be required to stand in the same spot more than ten or fifteen minutes.

If the children already know the alphabet, the teacher may commence after the following manner.

Look at your slates and pencils; are they clean, and in order? have you all a sponge? such as have not, hold up their hands. Teacher supplies all deficiencies, or, if a want of attention to neatness and order is observed, sends back those who have this fault.

Teacher.—Look at the marks I make with my chalk on the board; they are short and straight. Can you make such on your slates: try—(Teacher makes first one, then two, three, four, &c.—by this, teaching the children to make the marks, and also to count them at the same time.) | | | |

These lines are upright; they are called *perpendicular*. This is a long word, but you will remember it; it is not longer than Nebuchadnezzar, of whom you have heard me read in the Bible, or than Massachusetts, the name of the state in which we live. Will you all pronounce the word perpendicular, distinctly? Teacher can repeat, vary, enlarge, on this lesson, according to her own judgment, taking care not to dwell too long on one point. It is better to return to it

another day, than to run any risk of wearying the pupils. It should ever be borne in mind, that it depends mainly on the teacher to secure the attention of the scholar.

LESSON SECOND.

Teacher.—Look at the lines or strokes I make on the board. They differ from those I made last time; those were called perpendicular, these are called horizontal. Another long word, but you will soon become familiar with it. Try to make such marks as these, — one below the other, in this way. These are horizontal. Can you make such, straight? How many have I made?

Pupils.—Two.

T.—Now you may all of you make two on your slates, and endeavor to get them straight. How many have I made now?

P.—Three.

T.—I added one more to the two first, which made three. You can add one more to yours. How many have you on your slates?

P.—Three.

T.—Then we are alike. I have made two more. How many now?

P.—Five.

T.—You can make two more. How many have you now?

P.—Five.

T.—What is the name of these marks?

P.—Horizontal.

T.—What are these? (Makes some perpendicular marks.)

P.—Perpendicular.

Some one or more of the children will remember the words, and, by repeating them, teach the rest. They should be asked till all answer rightly.

LESSON THIRD.

Proceed after the same manner to teach them to make lanting strokes: / /

LESSON FOURTH.

Teacher.—What sort of a mark is this?

Pupils.—It is round.

T.—It is like an O. Make one. Now try another; you cannot expect to get it quite round at first. Make one or two more.

Teacher asks one of the scholars to count, and tell how many O's he has made, and so of several others, observing if he counts them right. The object of these lessons is to enable the pupils to make letters in the Roman character, on their slates; because, as soon as they can do this, and read them, it is apparent that this mode of instruction, viz., with black-board and slates, will be the best for teaching spelling, and the names of objects.

LESSON FIFTH.

Teacher.—Look at this letter which I have made on the board. What is it?

Pupils.—It is A.

T.—Now observe how I made it. First, a line slanting towards the left side; then another slanting to the right, from the same point; and then a horizontal mark across the middle. Try to make this letter on your slates; make it nearly as large as mine. Have you succeeded in making yours look like mine? Should you know that yours was meant for an A? If you think it does not look right, you can make another: do not rub out the first. Now try another. How many have you made?

P.—Three, or four.

T.—What is this letter?

P.—B.

T.—How did I make this? Observe me; first, a small o; then another, below the first, touching it; then a perpendicular stroke on the left side, to unite them. This is C. To do this, you must make almost a round O, not quite, and a little dot at the top.

In this way let them proceed, till they can write the

alphabet legibly, in large letters. Do not proceed immediately to the small letters, but begin to spell short words.

LESSON SIXTH.

Teacher. — What is this?

Pupils. — A hat.

T. — What letter stands for Hat: does any one know? If there is no answer, Teacher tells them, and makes an H on the board. What are the other letters in hat? Teacher tells them a, t; makes these letters, and waits for the children to do the same, and then asks, what letters are required to spell hat?

This method of teaching spelling, though at first it appear slow, will, in the end, prove the shortest and most effectual.

The teacher should (if she has any acquaintance with drawing, and very little will suffice,) instruct the children in drawing on their slates. The following is a specimen of the method we would recommend.

LESSON SEVENTH.

Teacher. — What is this I have drawn on the board?

Pupils. — A window.

T. — Would you like to draw one like it! Bring your slates and pencils, and take your places for slate exercises. Attend to what I do and say. I draw the top line thus; you can do the same on your slates. Observe, it is a horizontal line, and does not rise up or fall down below a level. Have you drawn yours level? If not, correct it, before rubbing out the wrong line. If your line slants down a little, draw another just above it, thus, — and, if any of you have made a line which slants up a little, draw another below it, — and after this, rub out the slanting line. When you have all finished the top line of the window, I will proceed. I now draw the two sides of the window, which are two perpendicular lines, the same distance apart all the way. When lines are the same distance apart all the way, they are called parallel lines. These, which I

have drawn, (points to them,) are parallel. Look at those two benches. You perceive that they are the same distance apart. What are they?

P. — Parallel.

T. — Be careful then to draw your lines like mine, parallel. Observe that these two lines are longer than the top one. Are yours so?

P. — Yes.

T. — Now I draw the bottom line of the window, which is a horizontal line, is it not?

P. — Yes.

T. — This is the frame or outside of the window. We will now make the bars or sash. First, a perpendicular line through the middle: look at mine; make yours exactly like it. This is the second line, through the centre also; but is it a perpendicular line, like the first?

P. — No.

T. — What is it?

P. — Horizontal.

T. — That is right, draw it. How many panes does this make in the window?

P. — Four.

T. — Four panes of glass. Just enough for four little children to look out; a pane for each head.

LESSON EIGHTH.

Teacher. — I will now draw you a house: if it is not too difficult, you may copy it. There is a picture of a house, and we will try to draw one like it. [Teacher should be provided with patterns, simple, correct, and interesting, of various familiar objects, houses, fences, windows, doors, bridges, urns, pitchers, tubs, baskets, boxes, &c. &c.] She should draw each line, giving a reason for drawing it, and describing the rule by which it is drawn, its proportion to other lines, its variation from other lines, in form, size, &c., waiting full time between each line, for the children to complete theirs,— after the same manner as is detailed in the instruction-book for drawing.

Simple outlines of animals, flowers, boats, carriages,

articles of furniture, and other familiar objects, may be taught in the same way. The object is not so much to impart the art of drawing, although this is a very valuable acquisition, both in a moral and intellectual point of view, as to exercise the powers of observation, attention, and comparison ; to teach children the names, uses, and properties of the objects they draw, and to furnish them an interesting and innocent occupation. Nothing can be more unreasonable, than to require a child to remain quiet, unless you furnish him with an occupation, (and the means of continuing it,) which will engross his attention, and call into exercise some one or more of those powers, perceptive or reflective, which may be exercised, without disturbing those around him.

A great advantage in allowing children to have slates in their hands is, that they are themselves, during the lesson, active, coöperating with the teacher; whereas, in mere lectures, even when accompanied with maps, diagrams, pictures, &c., the children are nearly passive, although this latter method is a great improvement on the old one of committing to memory, and reciting from books.

The elements of botany and natural history, of astronomy and geography ; arithmetic and geometry ; the mechanical powers ; simple, but clear and accurate ideas of machinery ; modes of travelling, on the land and on the water ; manners and customs of the various nations of the earth ; trades, &c., can be taught by this method far better than any other now in use. Whenever real objects can be obtained, let them be exhibited, and the lessons given on them, and the pupils be taught, in cases where it is practicable, to make drawings of these ; first, because it gives them some co-operation in the lesson ; and second, because there is no way so sure of fixing an object in the mind, as an attempt, even an unsuccessful one, to draw it.*

We are aware that these requisitions suppose the teacher

* See Scott and Goethe on this subject, neither of whom could draw, (which they constantly found reason to regret,) but both endeavored to make a rude drawing of any scene they intended to describe, because, as they have both said, such an *attempt*, even, gave truth and expression to their description.

acquainted with drawing, and, indeed, with the elements of every science above-mentioned. This is not requiring too much of a teacher. The art of linear drawing can be acquired by a little practice, with the aid, at first, of a very few lessons from an experienced teacher, say a dozen or twenty ; and the elements of the sciences can now be obtained from books in a short time. The true difficulty in the case, is to acquire the *art of teaching*, not yet perfectly understood. We hope that the specimens of lessons already given, and those to be added, will suggest some of the most important principles and rules of teaching, and facilitate the labors of such as sincerely desire to perform, in the best manner in their power, that momentous duty, the developement and cultivation of the immortal spirits placed under their charge.

We add a few more specimens of the method of giving lessons on the different subjects proposed as suitable for very young children.

LESSON ON A COW.

Teacher.—Look at this picture. What is it ?

Ans.—A cow.

T.—I am going to draw it on the board ; would you like to learn to do the same ?

A.—Yes.

T.—I look at the pattern, and begin with the head. Draw a half circle for the top of the head ; then two slant lines for the face, rounded at the end for the nose ; another line just below for the mouth, (waiting between each line for the pupils to draw the same, or to correct any mistake.) I now draw the line for the back ; it is nearly horizontal, a little hollowed in the middle ; then the line below it for the belly, this is rounded ; then the legs. Look at my drawing, and observe the difference between the hind and the fore legs. Now the tail ; this is an irregular, waving line. Try to make yours like it. The horns you perceive are nearly half circles, and the eyes are just below where the horns are inserted, &c.

Show me your slates. They are done remarkably well

for the first. Teacher should be careful to repress all emotions of contempt. Sympathy and encouragement are to children, those genial summer influences, without which, the fairest buds of promise will be stinted or killed. Now write the name, as I have done to mine. I shall ask each one a question as to the uses, and natural history of the cow. Teacher goes through the class, adapting the questions to the degree of knowledge each one possesses, so as to give, if possible, each the pleasure of answering rightly, and then adds herself such other particulars as the children have not yet learned: and, if the lesson does not appear to weary them, questioning them before dismissing the class concerning the new particulars she has imparted.

It may be seen, from this short specimen, that a complete course of natural history, adapted to the age of the pupils, might be taught in this way to very young children, with ease and pleasure to themselves, and, it is hoped, with interest to the instructor.

LESSON IN ASTRONOMY.

Do you any of you know what is the shape of the earth on which we live? Nobody knows. Then I will tell you. It is round, like the full moon.

Would you believe it? the moon is very large; bigger than Boston; (say any place known to the children;) bigger than a thousand Bostons put together, and the reason it looks no bigger to us, is, that it is very far off. Did you ever observe a man when he was half a mile off? or a horse? do they not appear very small? Or did you ever look at a boy when he was going to fly a kite? The kite may be as tall as the boy, but when it is high up in the air, it does not look bigger than your hand. You can hardly see it. (Answers should be obtained to these and similar questions, until the children understand something of the effect of distance in reducing the apparent size of objects. Of course, they cannot arrive at any thing like adequate ideas of the heavenly bodies, but their ideas may be correct, so far as they go, and the knowledge they may acquire on this subject, will be both useful and interesting,

and not so far below that usually possessed by other persons, as many might suppose.)

Teacher proceeds. Now you know that when any thing is far off, it looks smaller than when it is near to, and the farther off, the smaller ; and when it is at a great distance, you cannot see it at all, unless the body is a very large one. You have seen boys playing ball on the common. If they are at one end, while you are at the other, you can see the boys, although they will look very small, not much bigger than a kitten, but the ball you cannot see at all. Thus you will understand that an object, to be seen at a distance, must be large. Now the moon is a very large body, larger than any thing you ever saw, and you may remember I told you the reason why it looked so small. Asks the reason, and if none can tell, repeats the reason given above.

It is, as I told you, a round body ; it is solid, like a ball, or an apple, or a water-melon. *Solid*, round bodies are called globes. The moon is a globe, and the earth is of the same shape. What shape, therefore, must the earth be ?

Ans. — Round. A globe.

T. — Yes ; and it is three times as large as the moon. Now see me draw the earth and the moon. I make two round figures, but one is larger than the other. Which is the larger ?

A. — The earth.

T. — Draw them on your slates. First look at me, and I will tell you how to do it. Make a horizontal line, like mine ; this is for the middle ; now draw a circle round it. This is the moon. We will next draw the earth ; is it to be larger or smaller than the moon ?

A. — Larger.

T. — How much ?

A. — Three times.

T. — I make a line for the middle of the earth, like this in the middle of the moon, but three times as large. Do what I have done. Now draw a circle round it : get it as near to a circle as you can. The line through the middle serves to measure the size of the circle. When this line

is larger than the one you compare it with, the circle will be larger. This line is called the diameter; this means the measurer.

If you have two apples, one very large, and the other smaller, and you run a wire or stick through each of them, just long enough to come out at the ends, and then take out the wires, and compare them, you can tell just how much one apple is larger than the other. This should be exhibited with two apples, or balls. Now write the names, as I do. Which is the moon?

A. — The smaller.

T. — And the earth?

A. — The larger.

After this manner, give a course of lessons in astronomy, avoiding numbers and dates, except in a few instances, and giving only such ideas of form, magnitude, relative position, and movements, as could be comprehended and remembered by a child.

LESSON ON GEOGRAPHY.

Teacher. — Did you ever take a walk on the common?

Ans. — Yes.

T. — How should you think it was shaped? I mean the whole common. If you met with a boy or a girl who had never been there, and you wished to describe to them its shape, do not you think it would be a good method of doing this, to draw the shape on the slate?

A. — Yes.

T. — Let us try to draw it. You know that the side on Tremont Street is longer than the other sides, and bends a little, in this way. Draw it like mine, as nearly as you can, at the bottom of your slate. The Park street side is the shortest, and straight, thus; the Beacon street side is also nearly straight, that is, it does not curve, but it slants out, thus; draw it. Then the fourth side, on Charles street, longer than Park street; it bends near the burying ground. Draw this; now write the names of the streets on all the four sides. Where do you think the great elm-tree should be drawn?

A.—Near the middle.

T.—Make a mark for it, like this. And the pond?

A.—Near the tree.

T.—And the burying ground?

A.—At the lower end.

T.—Draw these like mine. If you go out after school, and stand between the elm tree and the pond, at twelve o'clock, with your back to the sun, on your right hand will be that part of the heavens where the sun rose; this is called the east; that on your left hand is the place where the sun will set, this is called west; before you is the north; behind you is the south. Mark these points on your slate, thus; E, for east; W, for west; S, for south; N, for north. Who can tell me which is the west side of the common; that on Charles street, or that on Park street?

A.—Charles street.

T.—Yes; this is nearest to west, though the sides of the common do not run exactly east and west, north and south, but the corners are nearer to these points. Now, if you wish to draw the common, (or any other spot of ground familiar to your pupils,) just as it is, you must find out which way the lines run, with regard to these points. They are called cardinal points. Can you remember this word? N, S, E, W, what points are these?

A.—Cardinal.

Teacher does this; putting down a few striking objects, as the tree, hill, pond, &c., and requires the children to rub out what they have done, and draw it according to the true position. It is of so much importance to understand the use of the points of the compass, that a little time should be given to this object.

T.—Now, you have a true drawing of the common, and a child who had never seen it, and could not come to see it, might get some idea of the spot, from your drawing. He could not, indeed, know its beautiful green color, the shade of the trees, the rippling blue water, where the boys sail their pretty boats; but he would know its shape, position, and some of its principal objects, and how some of its principal objects, as the pond, great tree, &c., are situ-

ated. A drawing like this is called a map. When you cannot visit a place, it is better to have a map of it to look at, than nothing at all. Now, as the earth is so very large, as I have told you, there are many parts of it you cannot visit. Even those who travel a great deal, have seen but a small part of the world. Yet we wish to know as much as we can of those parts which we cannot visit, and persons who travel, are kind enough to make maps and pictures for us, which teach us a good deal about places far off. A map consists merely of lines, like those we have drawn of the common, and of points. It shows the shape of the country, and where the rivers, lakes, and towns are situated. A picture is an exact likeness of any spot or object which can be seen at one view, like this picture of the State House, the Falls of Niagara, &c. I shall show you maps of all the countries of the world, and you can copy them on your slates. Write the names of the principal places, rivers, oceans, &c.

Let the Teacher begin with a globe. Show them what is meant by river, lake, cape, island, &c. Whatever they can understand, which is all *any one* need to know of geography, may be taught in this way, with very little reference to books. There are few studies better adapted to very young children than geography. They may travel, in imagination, over the map, after drawing one. Mention to them the curiosities, animals, customs, and something of the history and great characters of various countries. Let them draw, or write something for every new fact, principally that they may be active, and also because this will enable them to remember the facts told them, better than any other method.

LESSON IN ARITHMETIC.

Teacher. — What is this figure? Tells, if no one knows; 2. Make it on your slate. What is this? 3. Make that also, directly under the 2, like mine? How many do 2 and 3 make, added together? Let us see. I make two marks, ||. You must make two. I then make by their side three more marks; do the same. Now we will count

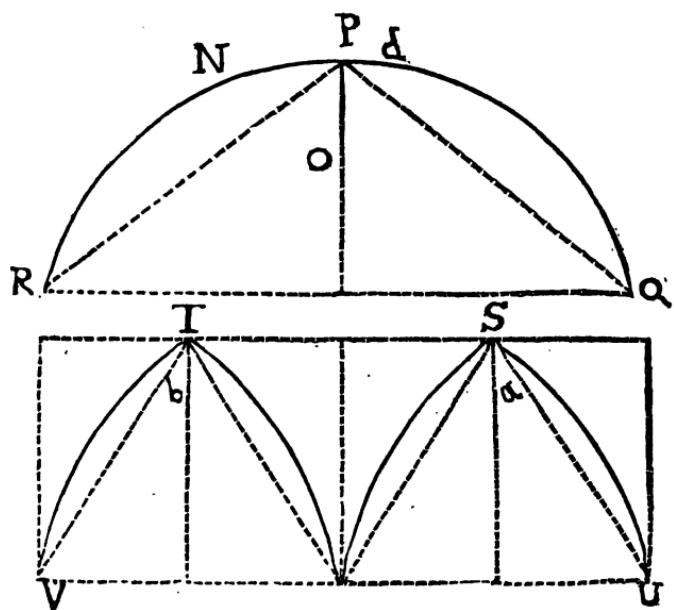
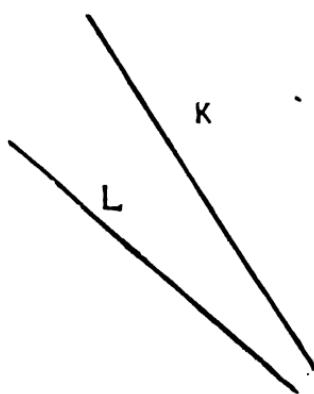
them ; one, two, three, four, five ; they make five. Draw a line under the figures, like mine, and put 5 below it. This is called addition ; it is the way we add 2 and 3 together, to ascertain how many it makes. If you have several sums to add up, place the figures one under the other, count them all up, and set down how much the whole amounts to, viz., the result, or answer to the sum.

Teacher gives out sums. J. has two apples, S. 3, M. 1, T. 4 : write these all down ; add them. Teacher goes through this process. Set down the amount underneath. When the pupils become familiar with addition, or any other rule, give out a sum to the whole class ; let each write it on his slate : then go off, and do it by themselves. Ask the answer from each, and notice such as are wrong, requiring them to go over it again, and ascertaining if the mistake is owing to carelessness, or imperfect knowledge of the process. Assist the latter, and request the former to do the sum alone.

A course of lessons on every subject, and for every class in a Primary School, might be thus written out in detail, but they would fill volumes, and it is thought that the specimens here given, are sufficient to illustrate the method, and show its superiority, both for teacher and pupil, over those in which the teacher relies principally on books, and lessons from them committed to memory. This mode of teaching, supposes the instructor well versed in the subjects she undertakes to teach. It is not unreasonable to demand such qualification for a business of vital importance to the individual and the community ; and, fortunately, the means of obtaining a thorough acquaintance with the branches proper for Infant and Primary Schools, as well as those of a higher grade, and also the best methods of communicating this knowledge to the young, are accessible to all, through our excellent Public Schools, and particularly the Normal Schools, of which, that at Lexington, for young ladies, offers so fair a specimen.

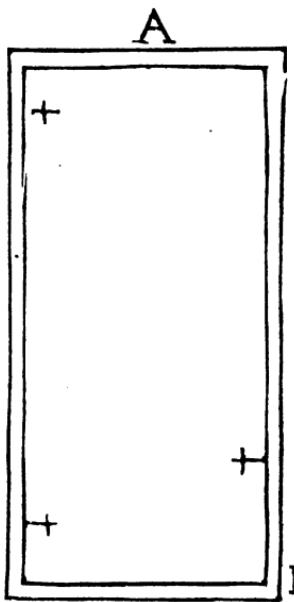
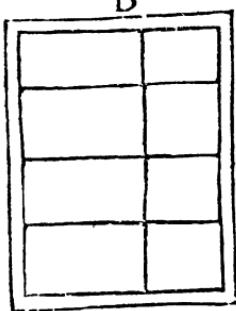
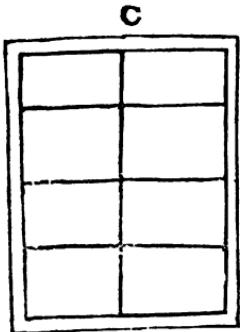


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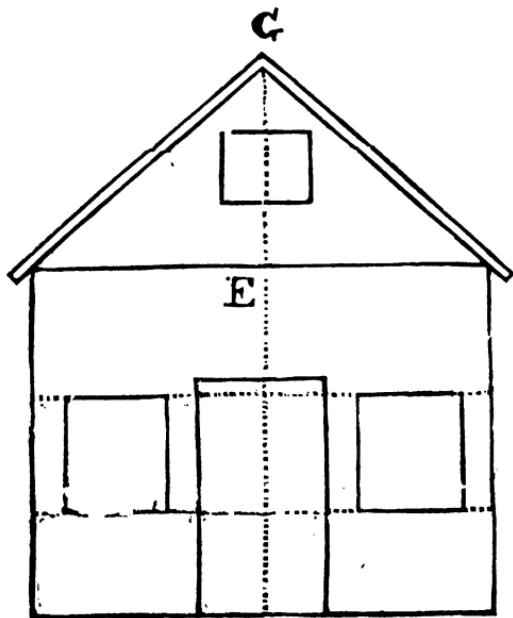


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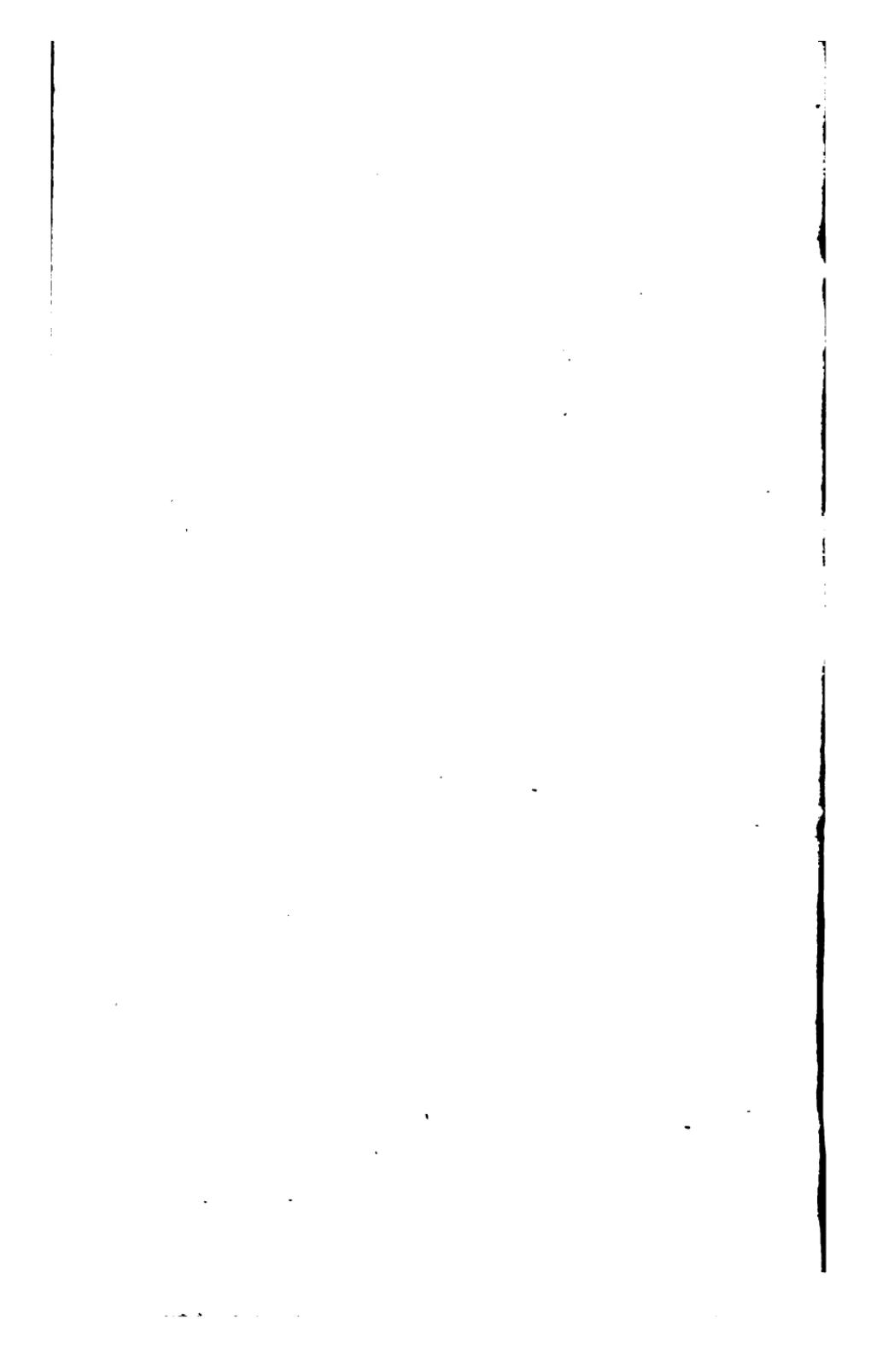


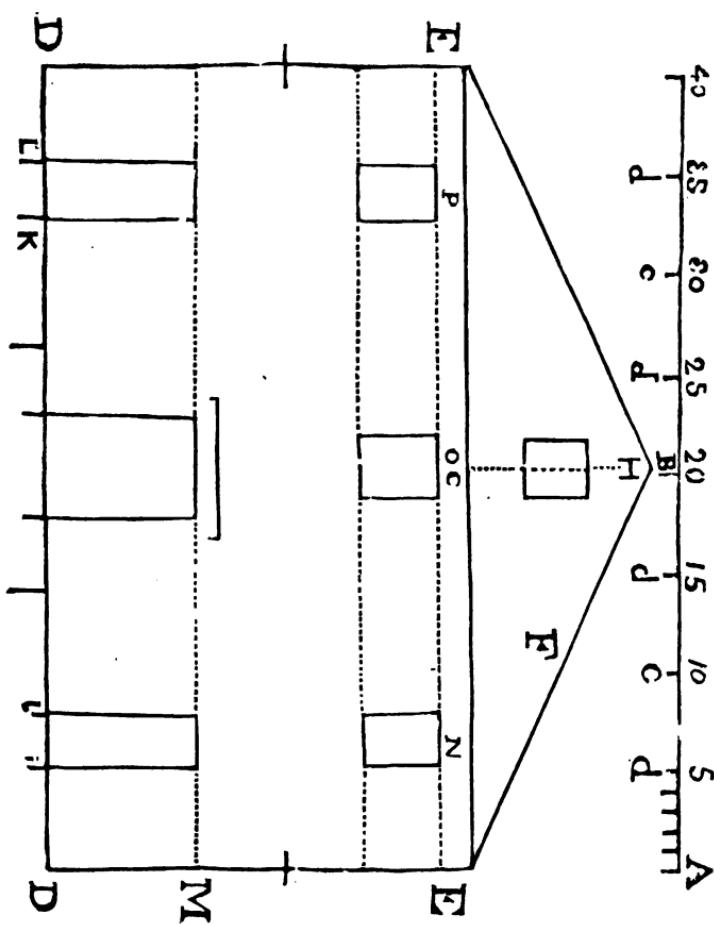


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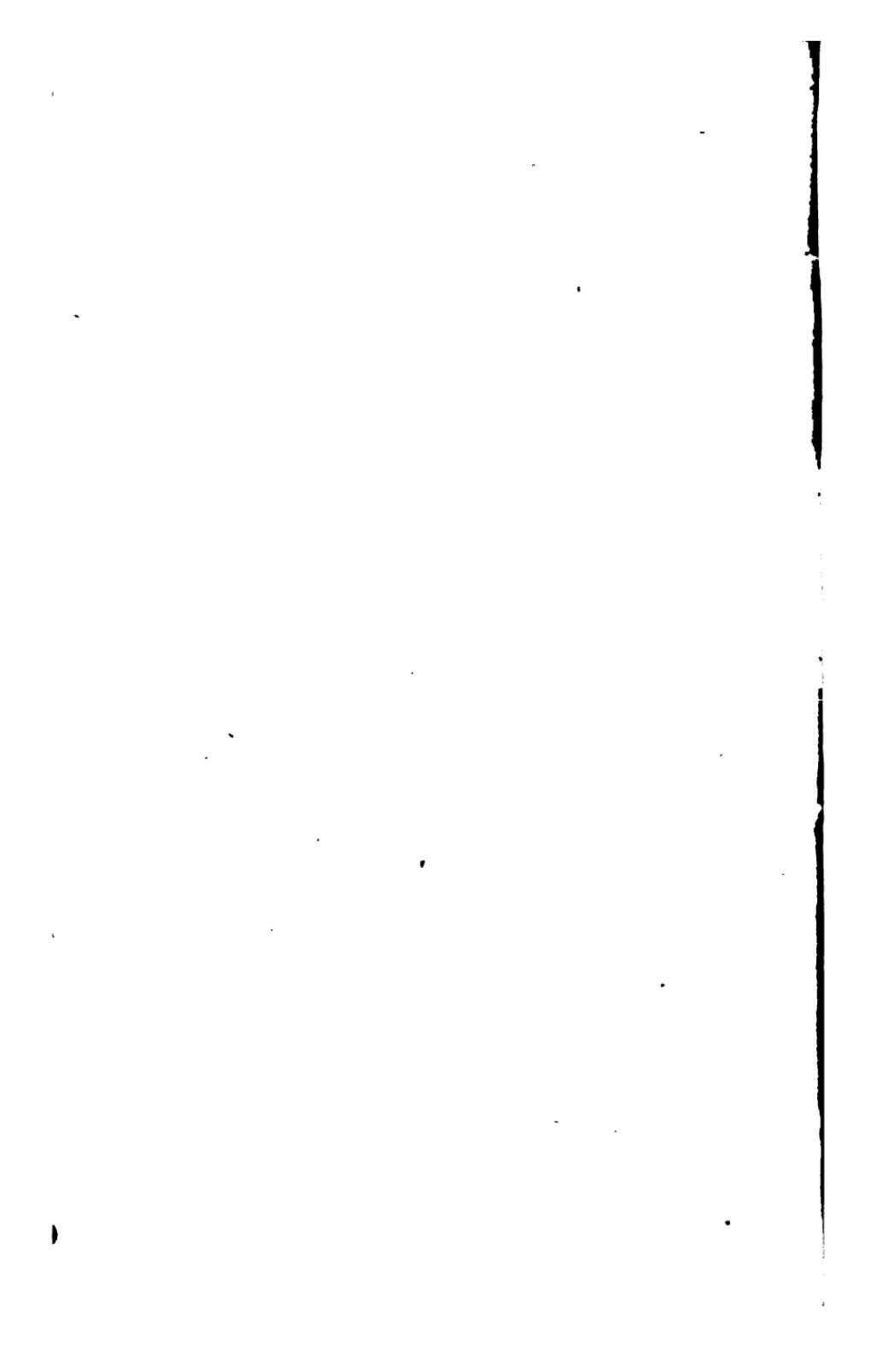


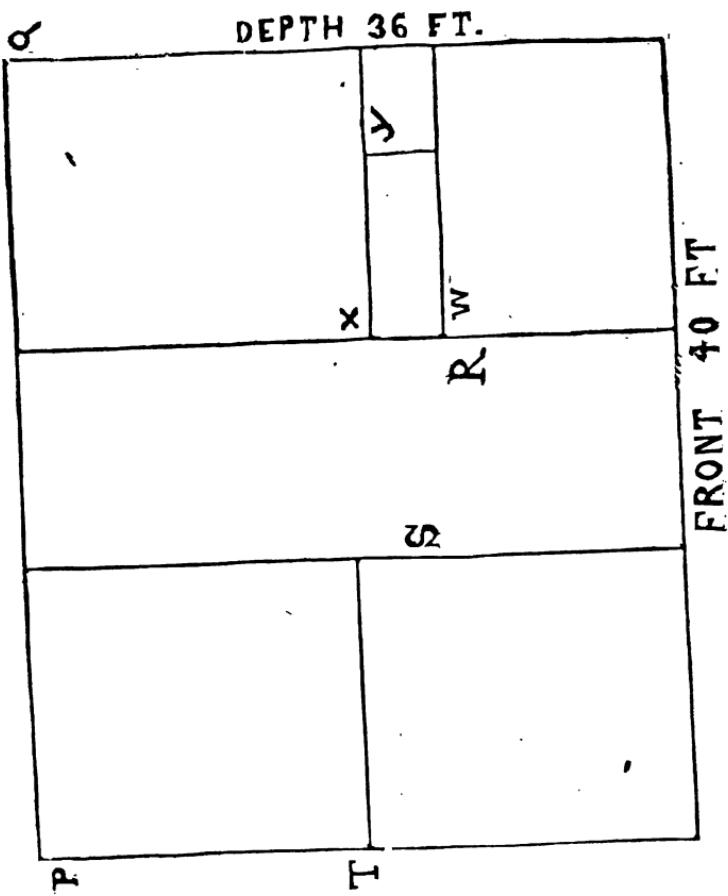
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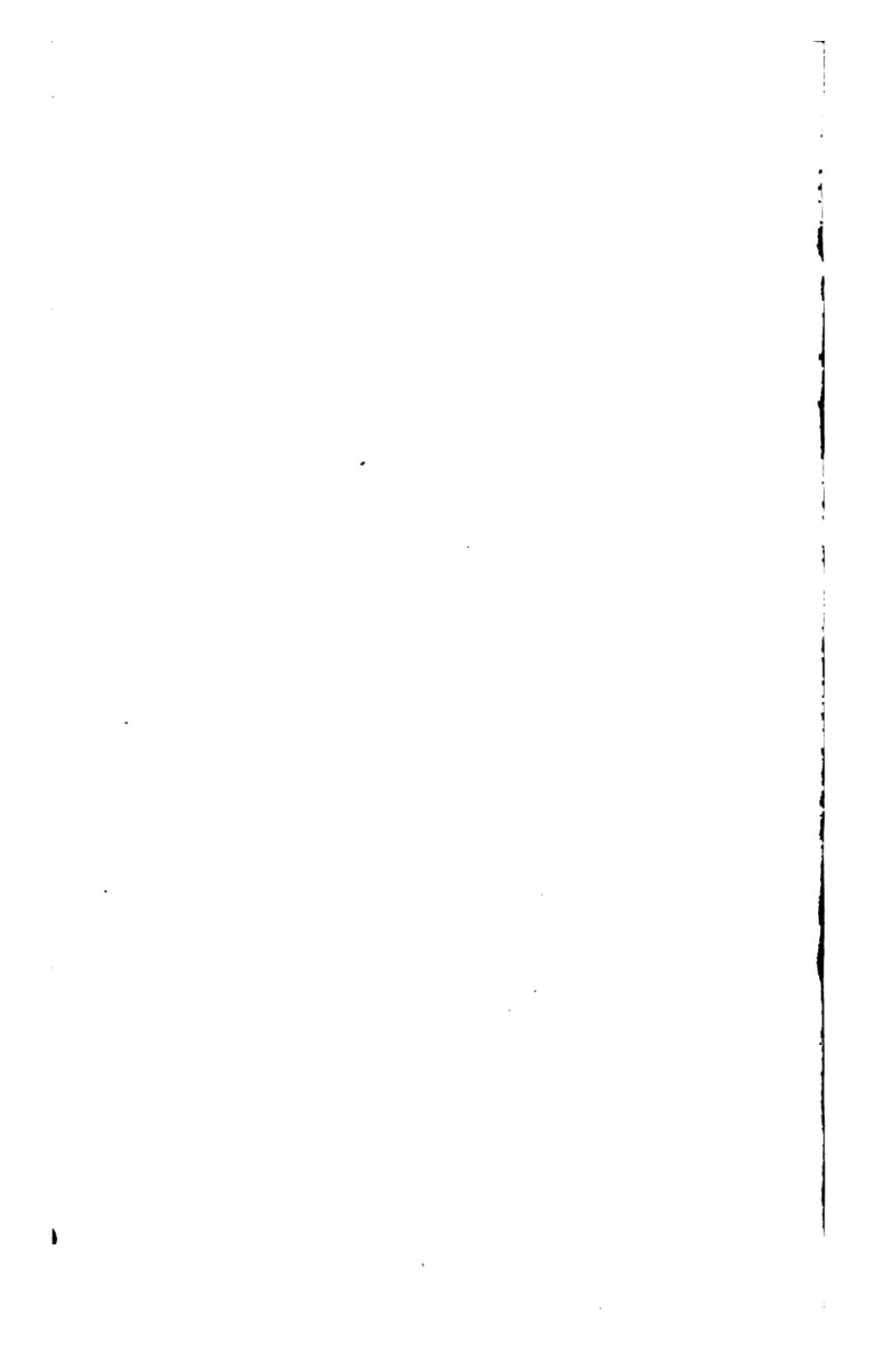


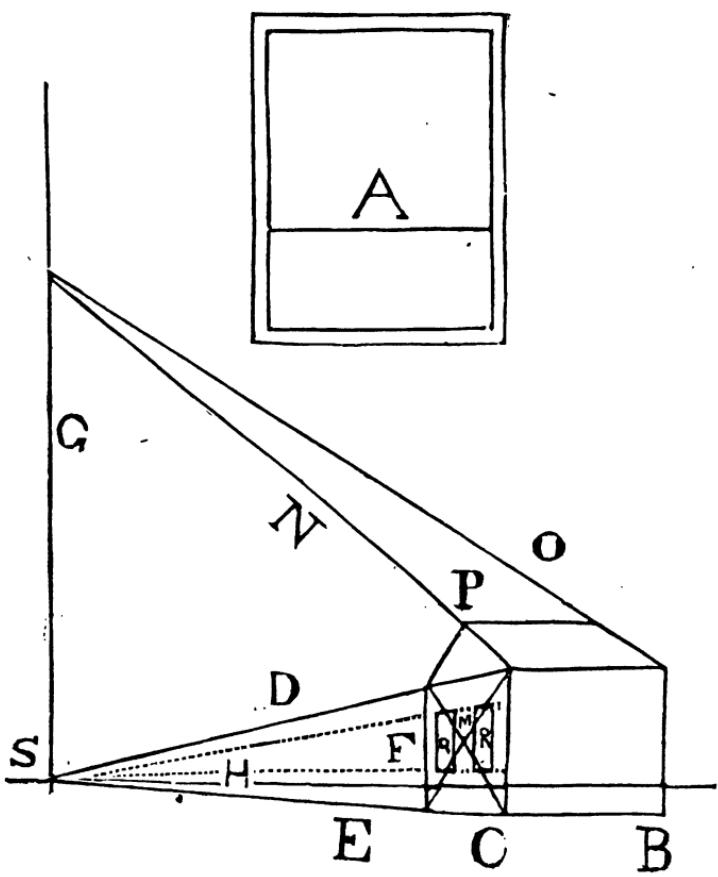


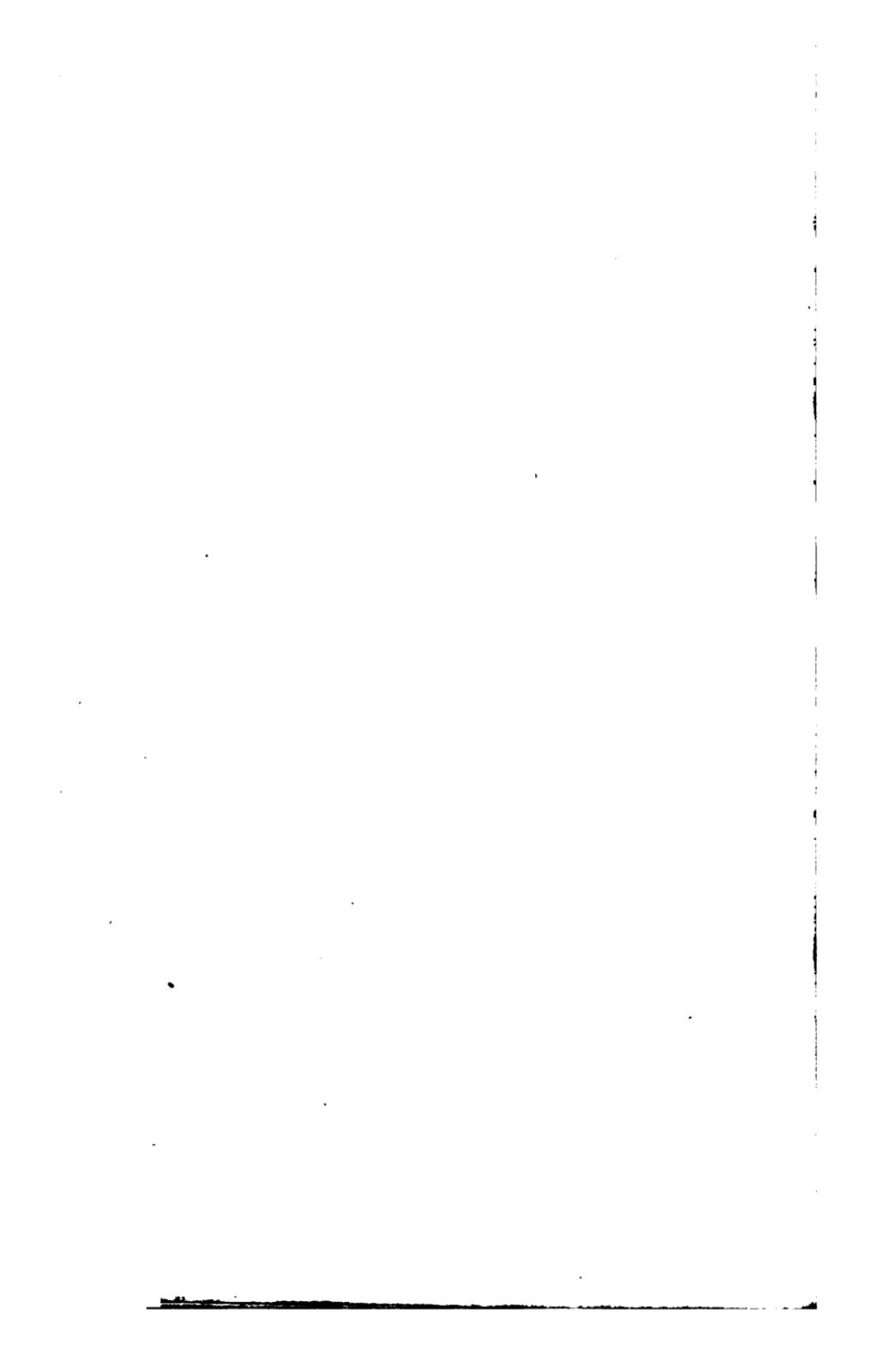
	feet.		feet.
Front,	40	Width of the Windows,	3
Hall,	10	Door in the centre,	4
Rooms,	15	Height of the Windows,	9
Two Stories,		“ “ Door,	9
Lower Story,	12	Upper Story, 3 Windows,	
Upper “	8	Height,	4
Roof, pitch,	10	Width,	3
Lower Story, 2 Windows to floor		Window in the Attic, (square)	3

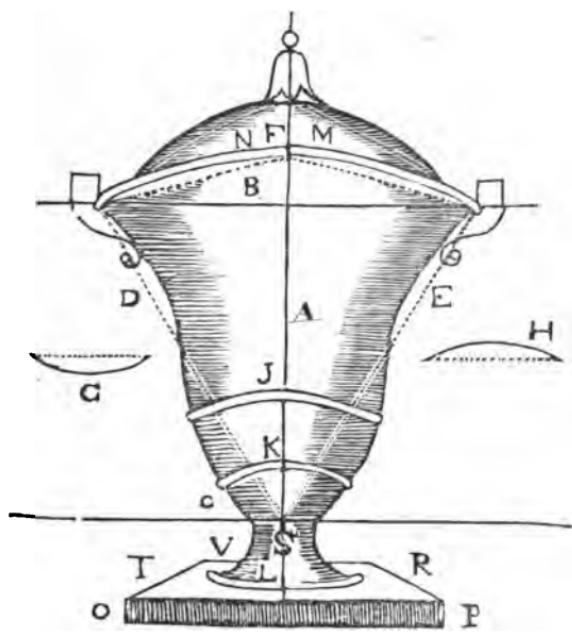


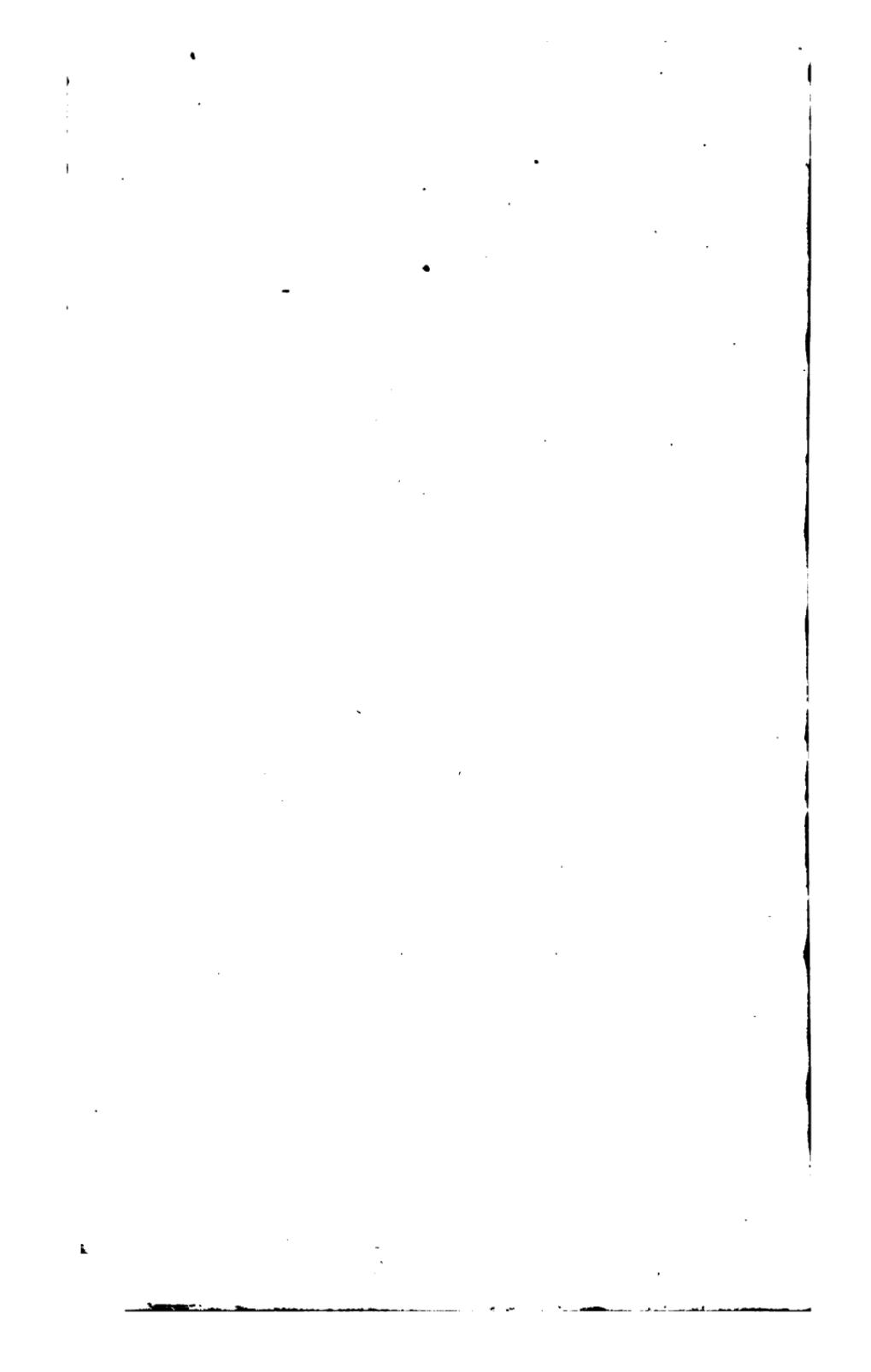












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